The Therapeutic Gazette

Whole Series Vol. XLVII | DETROIT, MICH., APRIL 15, 1923 | Third Series Vol. XXXIX, No. 4

Original Articles

Treatment of Gonorrhea in Women

BY JOHN A. McGLINN, M.D.

Associate Professor of Gynecology in the Graduate School of Medicine, University of Pennsylvania, Philadelphia

A consideration of this subject naturally divides itself into a study of the acute and a study of the chronic cases.

One rarely sees a case of acute gonorrhea in women. This is true both of office and hospital practice. During the past year at the venereal clinic of the Philadelphia General Hospital, I do not recall seeing an acute case. The reason for this rarity is that the initial symptoms, as a rule, are so slight that the woman does not realize that there is anything wrong with her. She seldom has the marked urinary symptoms so common in the male, and local irritation and discharge are usually slight. It is unfortunate that these cases are not seen early before the infection spreads through the cervix to involve the internal generative organs. In the acute case it is fairly easy to make a correct diagnosis. The history of infecting a male or being infected by a male known to have the disease is usually given. Bacteriologic studies in this stage yield a large percentage of positive results. The local appearance may or may not be typical of the infection, depending on the virulence of the organism. The diagnosis having been made, the treatment must be started immediately.

The basis of treatment is to remove or destroy the organism and change the soil of its habitat to prevent its growth. The majority of cases of gonorrhea are overtreated. There is no antiseptic that can be used strong enough or over a period long enough to kill the gonococci in the vagina that will not do more harm than good. Normal saline solution does as much good and less harm than any chemical germicide advised. It must be remembered that the vagina does not have glandular epithelium covering it. The vagina was made for rough use, and naturally its covering is tough and resistant. Consequently the infection of the vagina is practically always a surface one unless unwise treatment traumatizes the mucous membrane.

It is also to be remembered that the vagina is not the primary source of the infection; if it was any case of acute vaginal gonorrhea could be cured in a day or two. The infection is usually primary in the cervix. Douches do no good here except possibly to relieve congestion. The attack must be direct. Many germicides have been advocated and most all have been disappointing. It is not that the germicides will not kill the gonococci; many of the common ones, like phenol, nitrate of silver, iodine, etc., will undoubtedly kill the gonococci providing they come in contact with them. The failure to effect a cure depends, as a rule, on poor technique, or else because the germs have burrowed deeply into the tissues. In applying an antiseptic to the cervical canal, the canal must first be cleansed of all discharge and then dried. The canal is best cleaned with bicarbonate solution or hypochlorite solution, used either in a syringe or in swabs. After cleansing the canal it is

then dried with hot air (dental cavity drier) or cotton swabs. Care must be taken that the canal is not traumatized. After the canal has been prepared any suitable germicide can be applied. My personal predilection is for aniline gentian violet in strength of 1:200 in a warm solution. This solution has certain advantages: it is a gonococcicide, it does not irritate or break down healthy tissue, it penetrates deeply into the tissue, and gonococci will not grow in tissue stained with it. I feel that I have been getting better results with this than with the other gonococcicides commonly in use. The cervix can be treated daily if it is not traumatized. The vagina is being constantly reinfected from the cervix and consequently should be kept clean by frequent douching. There is nothing better for this purpose than hot normal saline or hot weak permanganate (1:5000), and nothing worse than lysol or bichloride solution. As stated before, all that is needed is a cleansing douche and not an antiseptic one.

As the vagina is constantly being reinfected its soil should be changed to at least retard if not prevent the growth of the bacteria. Nothing is better for this purpose than yeast, though lactic acid is also efficient. The yeast is readily applied by fashioning a vaginal suppository from one-half a commercial yeast cake, and inserting one into the vagina each night. After the vagina and cervix are gonococci-free a discharge frequently persists. The origin of this discharge is usually in the vagina and is due probably to a change in the vaginal flora. This condition is overcome by keeping the vagina dry. This is best accomplished by packing the vagina, through a Ferguson's speculum, with fullers' earth. The earth is left in over night and is washed out in the morning.

Two other parts of the external genitals are apt to be involved in the infection, namely, the urethra and the glands of Bartholin. My personal experience is that they are not involved as frequently as the text-books would infer. If the urethra does become involved, the glands of Skene become infected and the process becomes a chronic one. The urethra is best treated by the application of a solution of bland silver salts such as argyrol or protargol. It has been advised to inject the germicide into the glands of Skene. I imagine this is good practice if you can do it; personally I have never satisfied myself that I succeeded in doing it. If the glands of Bartholin become involved we might just as well make up our minds in the beginning that no treatment short of opening up the ducts and treating the tract directly is going to do much good. It is practically useless to try to inject the ducts or glands with a hypodermic syringe and needle. The openings of the ducts are seldom seen, and if seen they are exceedingly difficult to get into. As a matter of fact in the majority of cases it is impossible to make a diagnosis of Bartholinitis until symptoms and physical signs of acute infection of the gland develop or an abscess forms.

When the disease becomes chronic it is more difficult to eradicate. It usually remains latent in the cervix, Bartholin glands, and Skene glands; the most common site by far being the cervical canal. I am convinced that the long-continued use of the usual local treatments in chronic gonorrhea is a waste of time. I have seen cases gonococci-free as far as diagnostic methods could determine, and yet remain infective after two years or more active treatment. Our dispensaries are filled with patients who come month after month for treatment and who never get well. The trouble is that the germs are so deeply embedded in the tissues that local applications will not reach them. An important fact must be stressed here, namely, that three or four negative smears do not mean that the case is cured. Repeated examinations must be made, especially after several menstrual periods. In order to cure chronic gonorrhea of the cervix it is necessary to destroy all the bacteria buried in the tissues of the cervix. A curettement alone of the cervical canal is a useless procedure. The best methods

are the actual cautery, a Stumdorff operation, which consists in removing a cone-shaped piece from the cervix, or the application of radium. If radium is used it should be employed in small dosage and repeated, rather than in larger dosage. There is too much danger of a menopause unless the dosage is carefully estimated. I personally favor the cautery, though at times use radium. In using the cautery the temperature should be high enough to produce a slough but not sufficient to char the tissue. There is danger of stenosis of the cervix occurring after cauterization, so that postoperative treatments should be given to prevent it. If the glands of Skene are involved they should be laid open and their entire surface cauterized with a hot wire. If the glands of Bartholin and their ducts are involved, they should be completely dissected out or destroyed by cauterization.

The usual complication in the late cervical cases is involvement of the internal pelvic structures. This question is mainly a surgical one and will not be treated in this paper. If the infection has extended beyond the internal os, little can be accomplished by treating the cervix unless proper consideration is given to the body of the uterus and the appendages at the same time.

In conclusion we can emphasize two important points:

1. Do not overtreat the acute cases.
2. Local treatment is usually a waste of time in the chronic cases.

1530 Locust Street.

The Medical Treatment of Gall-bladder Disease

BY ANTHONY BASSLER, M.D.
New York City

The treatment of gall-bladder disease is both a simple and complex matter. In frank cases of cholelithiasis in which acute vascular phenomena in the gall-bladder exist (gangrene and its prodromal states), and in empyema of the sac, surgery simply is required. In the average type of case, so many times oftener met with, the difficulties begin with making a positive diagnosis, and often are not ended when a symptomatic recovery has taken place. In the many questions that arise none comprise greater difficulties than these which hinge on etiology. Whatever the disease, if the etiological factors are not well understood treatment can be only assumptive. In gall-bladder disease these etiological factors are not definite, therefore it is difficult to know just what causative condition should be treated and how, a matter especially important since gall-bladder disorders are more common than the profession supposes; so many cases make symptomatic improvement in spite of the treatment and independent of it, and to those are added so many instances of diseased gall-bladders without symptoms, that the matter is far from simple. Yet statements are made and articles written on the treatment of gall-bladder disease as if it were a simple matter, and procedures definite to bring about desired results are advanced as if we had always and only one entity in the biliary cause to handle.

To repeat, the matter of medically treating gall-bladder disease is not worth much unless consideration is placed on treating possible etiological factors. Taking a case of gall-bladder disorder, to prescribe a non-irritating diet for the stomach and duodenum, give some medicine (whatever it may be), do some medical bile aspirations, and observe general hygienic rules, is only symptomatic handling. The etiological factors go right on, many times bringing on recurrence of symptoms and often late

pathologic results in the sac for which only extirpation of the bladder is helpful. What may some of the causative factors be?

In my opinion, a gall-bladder is most often diseased from the portal stream, through the liver as an organ, there occurring infection of the biliary radicals, then the bile itself, and finally the sac and the ducts. The second way is by ascending infection up the ducts from the duodenum, which to me is against the bile stream and therefore not common. The third way it could occur is by way of the hepatic artery, which to me is rare. A rich lymphatic connection exists between the body and neck of the gall-bladder and the liver, the drain direction being toward the liver. In infection of the gall-bladder this drainage into the liver can bring about a vicious circle of infection causing continuing pathology of the sac and ducts by constant reinfection, and this is an important matter. Any generalized infection of the body with the organism of the B. typhoid-coli-dysentery group of bacteria or the many forms of streptococci or staphylococci can infect the bile stream in the liver and their culturization in the collected bile in the sac with subsequent infection of the walls and duct structures. It is my observation and belief that deficient bactericidal function of the liver and chronic biological errors (intestinal infections or toxemias of symptomless and chronic types) comprise the most important factor in gall-bladder disease. These belong largely to the saccharo-butyric toxemias, the anaerobic organisms of which with the secondary organisms they symbiose with (like the B. coli, streptococcus, staphylococcus, etc.) becoming the tissue infectors. After a close study of this subject in a large series of cases I am definitely convinced that we have here a factor of prime importance, and this biologic error in the gut—no matter how symptomless in itself—requires attention in the handling of the gall-bladder case, especially by bacteria and dietetic measures. The methods of diagnosis and treatment I employ are matters of record and need not be gone into again here.

In the last few years medical drainage of the gall-bladder has been broadly employed and unfortunately exploited. The physiology of the gall-bladder is still largely not understood, and only assumed from its anatomy and relations. As others and myself have proved, the Meltzer-Lyon method somewhat drains the biliary system, but not the gall-bladder specifically, and the gall-bladder only as a part of the whole, and sometimes the gall-bladder not at all and the ducts and liver radicals only. There in much literature in contradiction to this opinion of mine, but after sufficient research on the physiology of the method this is my definite belief. In practical use, however, there is benefit that can come from the method. Sometimes it is the mental effect on the patient in seeing bile abstracted from his body before his eyes; more often it is an abstraction of the infected bile more from the ducts and the liver, and in that way diminishing the number of bacteria residing in the biliary channels; and more often still the aspiration of a unit of bile secretion by its abstraction from the body, preventing resorption of it, stimulates the liver cells to replace this loss by a more healthy unit of bile. In the hypercholesteric case the occasional abstraction of cholesterin is helpful, and where an intestinal stasis exists (as is common) the amount of magnesium sulphate that escapes beyond the duodenojejunal angle purges the patient with benefit as to how he feels on the subsequent day. The medical man should not expect that he accomplishes more than this, however much benefit the patient seems to derive from the aspirations and however enthusiastic about the procedure he becomes himself.

Much was expected when the cholesterol-free diet was advanced. In gall-bladder pathologies, and very often when stones are present, blood chemistry does not prove that the cholesterin content is increased. Here and there this substance is above 17

per cent per 100 cc, but this does not occur with sufficient regularity to consider it strongly in an etiological sense. Whether such a diet in preference to any other should be uniformly carried out in all gall-stone cases is still doubtful to me. Of course, when the cholesterol content is raised in the blood or in the aspired bile its employment is indicated and should be rigidly followed for several months. But when on the other hand these proofs are not possible to obtain, there seems to be no scientific reason for doing so, especially since the maintenance of it is often a nuisance. Plainly, when an infection of the gall-bladder and ducts exists the establishment of this diet is of no value, and even in the simple pathologies (such as the "strawberry gall-bladder" or mucosal hypertrophies and interstitial processes in the ducts) no benefits are brought about. The best therapeutist is he who does not follow a general rule when it is possible to distinguish a cholesteremic state by laboratory procedure. Thus it is that when such cannot be proven a simpler and more practical plan answers the purpose according to our knowledge to-day. Examples of two such diets are the following:

HYPERCHOLESTEREMIC DIET.

This diet comprises two types for different days in the week. These are designated Fat Fast Days and Fat Feast Days. Just the number of each in the week that is proper for you remains to be worked out, but in the start-off the days should alternate—that is, one fat fast day, the next a fat feast day, the next a fast day, and so on until you are advised differently.

Suggestions for All Days.

Drink a glass of Celestins Vichy, kalak, or plain water before breakfast and at 12 M. Do not drink anything until the end of the meal, but take about eight glasses of water or fluid in the course of each day. Carlsbad salts and sodium phosphate are the best laxatives for you to take when necessary. The meals should be frequent and in smaller amounts, if this is practical; if not, three meals a day will do.

Fat Fast Days.

Fruits of all kinds, fresh, baked, or stewed.

Berries in season, with sugar, but no milk or cream.

Any vegetables at all, and cooked in any way, but no milk or butter should be used in their cooking or eating.

Cereals of all kinds, cooked in plain water and eaten with sugar only.

Any kind of breads, crackers, dry toast, and so forth, without butter, marmalade, jam, or bees' honey.

Raw oysters.

Soup of any kind in limited quantity, providing there is no fat on it.

Weak tea or coffee; no milk or sugar.

Skimmed milk and fat-free buttermilk.

The five foods especially to be avoided on these days are: eggs, cream, butter, meat, and fish.

Fat Feast Days.

All of the above with the addition of well-cooked lean meats and fish (excluding salmon, shad, and blue fish), eggs, and cream. In the cooking and eating of these, instead of butter, use oleomargarine.

ORDINARY DIET FOR GALL-BLADDER CASES.

Alkaline waters and spring waters should be used in good quantity between the meals. Carlsbad salts and sodium phosphate are the best laxatives for you. The meals should be frequent and the carbohydrates taken in the form of purées or finely divided.

The following table gives the ideal diet for you:

Breakfast, 7:30 A. M.

Fruit—apples, baked or stewed; pears and evaporated apricots, stewed; grapes, berries in season without sugar.

Fish—haddock, halibut, finnan haddie, cod, smelts, perch, trout, pickerel.

Lamb or veal chops; baked potato with a moderate amount of butter; one slice of dry toast with a little butter; broiled chicken, honeycomb tripe.

Cup of coffee without cream or sugar.

(You may omit the meats for breakfast.)

10:00 A. M.: Bread with a little marmalade, jam, or bees' honey.

Dinner, 1 P. M.

Raw oysters; fish as above.

Roasts—beef, lamb, veal, chicken, turkey.

Vegetables—spinach, cauliflower, asparagus, Irish potato, green peas, young string-beans, watercress.

Dessert—crackers and cheese (Camembert, cottage); fruit cooked without sugar; a cup of tea or a glass of water.

4 P. M.: One glass of milk with some crackers or a slice of toast.

Supper, 6 P. M.

Broiled fish as for breakfast; a baked potato with moderate amount of butter; stale bread or dry toast with a little butter; a cup of tea without sugar or a glass of milk, cooked fruit.

9 P. M.: A glass of milk.

Suggestions.

Drink a glass of Celestins Vichy or water one hour before breakfast and at 12 M.

Eat only the lean meats.

Do not drink anything until the end of the meal.

Take eight glasses of liquid in all during the day.

A catarrhal condition of the stomach, duodenum and colon requires attention in indicated ways. Experience shows that in gastroduodenal catarrhs the symptoms in the gall-bladder can be held in abeyance by proper lavages, diets, and medication. It is this type of case with its duct stenosis and bile stasis that the treatments at Carlsbad were most efficient in, and the large quantities of water by mouth, the saline and alkaline purgative benefits can be carried out here quite as well if patients would persist with such waters. Not a few of my cases have benefited as well at Saratoga or at Bedford Springs as abroad, and if at such places in our country the mail, telephone and telegraph lines could be cut, as the ocean does for those who go abroad, the results would be even better.

One of the important factors with the gall-bladder case is a constantly running increased specific gravity of the bile. It is because pregnancy increases this that so many of such cases follow child-bearing. But in all individuals, especially those who are obese, increased specific gravity of bile is a factor of irritation to the biliary channels. This comes on largely from insufficient physical exercise and life out-of-doors. The advent of the automobile is responsible for more gall-bladder troubles than any factor excepting infection. I now have records of twenty-seven physicians alone who have taken to walking instead of riding in autos between calls and been immensely helped in gall-bladder symptoms thereby. This sufficient outdoor exercise is especially difficult to get the average woman to do. Continued domestic duties compel them to remain indoors, and finally it becomes a habit of life, which men are also not free from, for there are many who live year in and out essentially an office and home existence with very short intervals and minimum of physical expenditure and fresh air between the two. Physical exercise and fresh air stimulates the flow of bile and its fluidity, and thereby enhances drainage of the biliary system. If several miles of walking a day can be carried out it answers; if not, the physical exercise at least can be gotten in a condensed way in a gymnasium or work with a physical instructor.

While the opiates are best in acute sharp pain, the low steady growl of a diseased gall-bladder with its hyperesthesia in the epigastric region can be benefited by application of heat, and better alternate heat and cold. For this purpose the use of live steam from the Kommeral steam-pot a few minutes, and then cold, this being alternated over a period of twenty minutes once or twice a day, is a measure of value. Alternate mustard plasters and ice-bag applications can accomplish this fairly well.

For the last twenty years, once or twice a year I have changed my medicinal treatments in these cases. Everything that ever was vaunted has been employed, much money has been spent, and but little real good accomplished. Cholagogues is a suggestive term, and any new preparation or combination that suggests it in name always rings an interest to the medical man. Careful observations fail to show distinct cholagogue properties to any drug. A number of times, however, patients have claimed benefit from medicinal measures, sometimes much to my surprise. There are none, however, that can stand the test of research scrutiny. Those which the largest number of patients have claimed benefit from are, first:

Sodium oleate;
Sodium salicylicum, āā 4.5;
Phenolphthalein, 1.0;
Mentholis, 0.35.

Fiat pill No. 50. Take 2 on arising and retiring, followed by a tumblerful of warm water.

The next is a combination medication:

(I) Sodium glycocholate,
Sodium salicylicum,
Sodium bicarbonatum, āā 0.25;
Pancreatin, 0.50.
Tab. pulv. No. 24.

(II) Glycerinum, 45.0;
Tincture cardamom comp., 45.0.

Sig.: Dissolve one powder in half a tumbler of water, and when well mixed add a teaspoonful of the mixture. Take this combination about 15 minutes after each meal.

And the third is nightly doses of succinate of soda in one-gramme doses, or its use after meals.

The surgeon may well hesitate in operating on cases of gall-bladder unless he is dealing with stone impaction, chronic recurrent attacks where a hopeless gall-bladder is suspected, mass pericholecystitic adhesions, an acute pathology of the gall-bladder, hydrops or empyema of the sac. A strawberry gall-bladder or even the infected one without stones or a febrile history is to-day not sufficient cause for its removal. In these medical treatment should first be tried and at least three months' time passed in efforts to benefit the condition. Where an infected (toxemia) condition exists in the entero-colon no benefit will ensue from operation alone unless stones are present or marked pathology exists. If marked disease is in the appendix this should be removed, but the gall-bladder not removed unless stones or marked pathology exist. Focal infection in any tissue of the body should receive attention. Care must be taken that lues or achylia as coexistent conditions are not treated by cholecystectomy. Look out too for the vagotonic with pain symptoms in the upper right quadrant, pulmonary adhesions attached to the right diaphragm, chronic appendicitis with gall-bladder or pyloric reflex of spastic types, a prolapsed hepatic flexure of the colon or one just short of complete rotation to fixed posterior position, and the occasional one of colonic stagnation where the right colon receives the main strain with attendant tenderness and subjective distress in the region of the hepatic flexure.

Intussusception: With Report of Four Cases*

BY LOUIS D. ENGLERTH, M.D., F.R.C.S. Edin.

Assistant Surgeon to the Frankford and St. Joseph's Hospitals, Philadelphia

AND

FREDERICK E. KELLER, P.C., M.D.

Demonstrator of Obstetrics in the Jefferson Medical College and Assistant Gynecologist to the Frankford Hospital, Philadelphia

Intussusception is the invagination of a portion of the bowel into the lumen of an adjacent part of the gut.[1] Thus it consists of an outer or receiving portion, called the intussuscipiens, the middle or returning layer, and the inner, called the intussusceptum. This produces a sausage-shaped tumor of variable size, which may be located anywhere in the abdomen.

The condition constitutes one of the most frequent forms of intestinal obstruction in children,[2] and doubtless occurs more frequently than it is recognized. This fact stands out in the number of cases reported in recent years. According to Griffith's Diseases of Infants and Children, two hundred and ninety-three cases were collected from the literature by Pilz in 1870. Hess reported three hundred and fourteen cases in 1905 *(Archives of Pediatrics)*. Three hundred and ninety-seven cases were reported from Denmark in 1913. Pitt reported one hundred and fifteen cases in one institution within twenty-five years, and Edington operated upon thirty-six in eleven years.

The relative frequency of intussusception in childhood, over 60 per cent of cases occurring in infants under one year, is due to the greater mobility and irritability of the child's bowel (Treves). Powers determined that the length of the mesentery, as compared to the body length, was much greater in nursing children, hence concluding that in these patients the range of mobility of the bowel must be correspondingly greater.[7] But it is not unknown in later life. Judging from statistics in general, 6 to 10 per cent is a fair average estimate of

*Read before the Northeast Branch of the Philadelphia County Medical Society.

its frequency in adults.[4] The two youngest reported cases in literature were six days old,[2] and Elbert Wing has reported a case seventy years of age. The factor of sex seems to play a decidedly important part in the incidence of intussusception, males being twice as liable as females.[1]

According to the location of the condition, intussusception is divided into four important varieties: ileocecal, colic, ileal,[12] and ileocolic, the first-named being the most common.

Gangrene of the intussusceptum, as a result of the compression and traction on the mesentery drawn into the bowel, may lead to spontaneous separation of the invaginated portion, which is passed out through the bowel, thus resulting in cure. However, in considering spontaneous elimination, Hermes states that it occurs with great rarity in children.[7] Moreover, if the process goes on to this extent, a fatal termination almost invariably results.

The etiology of the condition is not entirely clear. Diarrhea may predispose, as well as constipation and colic. An invaginated appendix and abnormal condition of Meckel's diverticulum have also been factors. Invagination may be produced through the efforts of the intestines to expel large fecal masses or polypi. Tumors as a cause of intussusception have been noted occasionally. Usually they are located at the apex of the intussusceptum, and are pedunculated. They occur, as a rule, in adults, and are rarely malignant.[7] Spasmophilia is a factor in some cases, according to Goldschmidt.[5] Abdominal injury is given as an occasional cause, and agonal intussusception, due to irregular peristalsis of the intestine, developing in the few moments preceding death,[2] is of quite frequent occurrence in infancy. It is also interesting to note that the difference in diameter of the small and large intestines may have an etiological bearing. At birth the large bowel is only a few millimeters larger than the small bowel, but at five years of age it is two to three and one-half times larger. This disproportion is greatest during the first few months of the child's life, for at this time the colon grows relatively faster than the small bowel, and Powers believes that the ileocecal valve is less competent at this time.[7]

Were peristalsis alone the cause, the condition would be far more common than it is in the diarrhea of children.[1] Three of our patients, however, had a definite history of munching on toast, crackers, or zwiebach. This leads to an interesting surmise as to whether or not the presence of solid food, or food more solid than usual, in the gastrointestinal tract may be an exciting factor in causing hyperperistalsis. In most instances, however, intussusception develops in those persons who have been in apparent good health.

The invagination may be either a thrusting forward of the receiving portion by a contraction of the longitudinal muscular coats (Nothnagel), or a thrusting inward and downward of the portion immediately above by means of an increased or spasmodic peristaltic action.[6] The symptoms are absolutely characteristic in infants and young children, and there is little excuse for failing to make an early diagnosis. The fate of these children rests in the hands of the general practitioner, for the mortality is in direct proportion to the promptness of operation; on that factor, and on the degree and intensity of the strangulation of the mesenteric circulation, depend the patient's chance of recovery.

As Clubbe[11] well says: "Symptoms should not mean the condition of the child thirty-six or forty-eight hours after invagination has taken place, but the condition of the child not later than six to twelve hours after that occurrence." Opinion should be based on the story that the mother tells, rather than on the appearance of the child. Clubbe's description, in part, follows:

"The general appearance of the child is frequently the cause of mistaken diagnoses being made. A child in the early hours (six to twelve) of intussusception often does not look sick, and men cannot bring themselves to believe that a healthy looking,

perhaps laughing baby can have intestinal obstruction. Yet this is often the case. A sudden violent abdominal pain, accompanied by regurgitation of the stomach contents, is usually the first sign, and it frequently follows a feeding or a bowel movement in an apparently healthy child. At the onset the child turns pale, looks very ill, and screams; usually he recovers quickly, and cries only at intervals when he gets griping pains, as the intussuscipiens makes a fresh attempt to force along the intussusceptum. Later symptoms are practically those of intestinal obstruction. The child will look sick, and show an elevated temperature and a quick pulse. There will be vomiting at frequent intervals, straining, and the passing of blood and mucus, but no fecal matter; and as a rule there will be found on palpation an obvious tumor, usually on the left side, which may sometimes be felt by rectum. The abdomen is soft at first, later distended, and often tender. The tumor mass gradually enlarges, as the intussusceptum is forced along the intestinal tract."

The prognosis depends upon the age of the patient, whether the condition is acute or chronic, and upon the treatment. Especially does the prognosis depend upon the treatment in the acute type of the disease, and more especially upon the time at which the treatment is instituted.

According to Pilz and Holt, the mortality of cases under one year is about 63.5 per cent.[8] Gibson, of New York, collected one hundred and eighty-seven cases with a general mortality of 51 per cent; in one hundred and twenty-six of these cases, in which the tumor was reducible, the mortality was 36 per cent; in sixty-one, in which gangrene had taken place, it was 80 per cent.[8]

The time of treatment is an important factor, as is shown by the following table, taken from Holt, and based upon Gibson's one hundred and eighty-seven cases:[8]

Day of Operation.	Mortality.
First	37 per cent.
Second	39 per cent.
Third	61 per cent.
Fourth	67 per cent.
Fifth	73 per cent.
Sixth	75 per cent.

After the second day the chances for success are poor.

Injection of the bowel with air or water is too uncertain to depend upon.[8] The making of the diagnosis indicates the treatment, which is laparotomy without delay. "It is now generally admitted that every hour of delay in operating diminishes the chances of recovery."[10]

The abdomen is opened over the tumor mass, or, if none be present, through the right rectus. Reduction of the tumor is accomplished by pushing it back, rather than by pulling upon the invaginated portion, which is likely to tear the bowel.[9] If reduction is not possible, the anastomosing operation of Maunsell may be feasible. Enterectomy is rarely justifiable. A short-circuiting operation, or the making of an artificial anus, if the lesion be low enough in the bowel, may save life, but these latter operations carry with them a high mortality, owing to the seriousness of the condition.

Case 1.—A. P., male, aged six months eighteen days, was a full-term child, delivered by medium high application of forceps; was breast-fed, and had no illness subsequent to birth until the present condition arose. While munching on a crust of zwieback (January 20, 1921, at 6 P.M.), the child screamed, turned pale, and broke out in a cold sweat. In a few minutes he seemed better, but his color was still bad. He was very thirsty and vomited once after drinking considerable water. The mother, a rather intelligent woman, gave the child an enema, and applied a spice bag to his abdomen. From time to time he cried out as if in pain. We saw the child first at midnight—*i.e.*, six hours after the onset of the condition. On examination we found the following: child rather pale, pulse rate increased but slightly, temperature 99.2°, chest and head negative; abdomen not distended, and no marked rigidity, but a definite sausage-shaped tumor was palpable in the right abdomen, extending both above and below the level of the umbilicus; rectal examination negative. In this case there were no bloody stools.

The child was admitted to the Frankford Hospital, where immediate laparotomy was performed, the intussusception located and reduced; the appendix, which had been carried in with the intussusceptum, was found to be gangrenous and was removed. The child had an attack of bronchopneumonia subsequent to operation, but ultimately recovered.

Case 2.—J. V., male, aged six months, was a normal full-term child, delivered by spontaneous birth, and breast-fed. While munching on a cracker the patient cried out and became pale. He was placed to the breast, which he took, but vomited soon afterward. The bowels moved once after this, apparently normally, and then the child began to have blood and mucus in the stools; movements became frequent, some streaked with blood, while others seemed to be blood alone. Vomiting was persistent. Home remedies were tried, and it was five days after the onset that one of us was called in consultation. The patient showed the following: face pale, eyes somewhat sunken, temperature 100°, pulse rapid, chest seemed negative. The abdomen was somewhat distended, but there was no mass palpable either by abdomen or by rectum.

The child was admitted to the Frankford Hospital, subjected to laparotomy, and the intussusception found to be located in the neighborhood of the liver, in an undescended cecum, the type being ileocolic. Reduction was performed. The appendix was dark, but circulation seemed better during the course of manipulation of the mass, hence it was not removed, in order not to prolong the operation. The bowels moved within twelve hours of operation, and the general condition improved until the fifth day, when the child developed right-sided convulsive seizures and died the following day. He had taken nourishment well, and the bowels had moved daily following operation. There was no wound infection.

Case 3.—J. B., male, aged six months, was a normal full-term child, breast-fed, whose general health had been good. While on his mother's lap, receiving his bath, the child strained, had a good bowel movement of normal consistency, screamed, turned pale, and gagged. Soon he began to pass considerable bright blood in his stools. The mother recognized something out of the ordinary and sent for the family physician, who, suspecting the condition, called one of us in consultation. Examination revealed a mass occupying the left side of the abdomen, extending both above and below the umbilicus, and palpable by rectum. The patient was admitted to the Frankford Hospital, fifteen hours after the onset of the condition, and laparotomy performed. The mass proved to be ileum, having traversed the ascending, tranverse and descending colon. Reduction was effected with difficulty. A mass of indurated and edematous tissue was found at the ileocecal site, giving the impression of a growth inside the lumen of the bowel, but inasmuch as we were able to force gas past this area the bowel was not opened. This patient had a rise of temperature to 105° postoperative. After thirty hours the bowels moved; in the meantime, however, the breast feedings had been continued without vomiting. The fever subsided rapidly and recovery was uneventful.

Case 4.—V. D., female, aged six months, was of Italian parentage, and an accurate history of the condition was not obtained. The child had been ill for three days. Previous to this time she had been apparently well. The condition started suddenly, with pain in the abdomen and vomiting. There were no bowel movements after the onset of the condition. Distention of the abdomen was noticed. At the end of the third day of the disease the mother of the patient recognized that the child was very ill, and the family physician was called. He immediately had the child admitted to the Frankford Hospital. On examination, we found the following: A well-nourished female child, in extreme shock, with a markedly distended abdomen, a very rapid pulse, and extreme pallor; physically, a tumor mass could be felt in the right side of the abdomen. Operation seemed hope-

less, yet it was the patient's only chance. Abdominal section revealed an ileocecal intussusception which had progressed to the point of gangrene. The child died before the operation was completed.

SUMMARY.

Analysis of these four cases brings out a few interesting facts: Three of our patients were males and one female, all under one year of age. The two cases which recovered had existed nine and fifteen hours respectively. In one case only was a mass palpable by rectum; in one case no mass was palpable by any means. Also, the fact stands forth that in the case in which the condition had existed the longest, *i.e.*, five days, the bowel was in remarkably good condition and there was no necessity for resection.

The writers wish to express their thanks to Dr. Edward A. Schumann for the privilege of reporting one of the cases of intussusception, and to Dr. Charles F. Nassau for the privilege of operating upon and reporting two of the cases.

BIBLIOGRAPHY.

1. DaCosta, J. C.: Modern Surgery (8th edit.), 1114.
2. Griffith, J. P. C.: Diseases of Infants and Children, vol. 1, 784-787.
3. *Jour. Amer. Med. Assn.*, vol. 77, No. 15, 1208. Abstr. *Brit. Med. Jour.*, London.
4. Ochsner, A. J.: Surgical Diagnosis and Treatment, vol. 3, 70.
5. *Jour. Amer. Med. Assn.*, vol. 77, No. 23, 1851. Abstr. *Mittheil. a. d. Grenzgeb. d. Med. u. Chir. Jena.*
6. Anders, J. M.: Practice of Medicine (14th edit.), 835.
7. Keen, W. W.: Keen's Surgery, vol. 4, 659-661.
8. Holt, L. E.: Diseases of Infancy and Childhood (6th edit.), 414-415.
9. Ashhurst, A. P. C.: Surgery, Principles and Practice, 889.
10. Thomson, A. T., and Miles, A.: Manual of Surgery (5th edit.), vol. 2, 534.
11. Ochsner, A. J.: Surgical Diagnosis and Treatment, vol. 3, 70.
12. DaCosta, J. C.: Modern Surgery (7th edit), 981.

The General Treatment of Acute Infectious Diseases

BY CHARLES GREENE CUMSTON, M.D.

Lecturer at the University of Geneva, Switzerland

This comprises, first, a general anti-infectious medication common to all infectious diseases; and, secondly, for certain among them, special medications according to the particular nature of the infectious agent—vaccines, sera, etc. It is indicated to act, if possible, on the infectious agent by utilizing, when it exists, the curative specific medication, and it is likewise important to take *the patient into consideration,* a thing very frequently overlooked at the present time.

During the past years the treatment of acute infectious diseases has undergone a profound change. Many of the older medications are now discarded, and in a general way the physician endeavors to fulfil the following major therapeutic indications, viz.: to regulate the nervous functions upon which depend the natural means of defense of the organism, prevent the development of secondary infections, tone up and stimulate the organism, and favor, if necessary, the defensive reactions of the organism which realizes in the surest way the specific defense against a given infection.

The principal means most apt to fulfil these therapeutic indications are: general hygiene and antisepsis, diet, antithermic chemical agents, hydrotherapy, tonics and stimulants, leucogenous medication, and proteinotherapy.

In all acute infectious processes the diet should be limited and more or less strict according to the case, but should always be sufficient to nourish the patient in order that he may resist the infection.

If an absolute milk diet is indicated, a

glass of milk, with or without the addition of coffee, tea, or Vichy water, is to be taken every two or three hours, excepting when the patient is asleep, throughout the twenty-four hours, so that two or three quarts will be consumed.

If an exclusive milk diet is not absolutely indicated, or if it is not well tolerated, or if it is distasteful to the patient, a liquid diet composed of milk to which kirsch, anisette, cognac or orange-flower water may be added, and thin beef, veal or chicken broth, with fat removed, may be allowed. Lemon or orange juice should be taken. In some cases besides milk a yolk of an egg in broth may be given twice a day, or a teaspoonful of meat juice twice a day. Wine jelly and calf's-foot jelly are excellent.

Food and drink must be taken in small amounts at frequent intervals—every hour or two—and during the entire period of full development of acute infectious diseases milk should be principally relied on, using salted foods (broths) with moderation on account of the danger resulting from the introduction of sodium chloride into the organism, chloride retention being the rule in these affections.

If there is vomiting or gastrointestinal complications, a water diet is to be resorted to for twelve, twenty-four or thirty-six hours.

Nurslings should not be deprived of the breast, but those on bottle feeding should have Vichy water or lactose added to the milk.

Balneotherapy is to be preferred to the antithermic drugs as it is a powerful antithermic, while its effects can be graduated or changed by varying the length of the intervals, duration of the bath, and the manner of application. According to the case the physician should order cold baths, baths progressively cooled, tepid or hot baths.

The cold bath is indicated when the pyrexia is continued and reaches 101.5° F. or over and when there is at the same time much restlessness or delirium. In these circumstances the cold bath reduces the temperature, provokes slight sweating and polyuria, and calms the nervous manifestations. It is also very useful in persistent hyperthermy with a tendency to adynamia when no circulatory disturbances or a weak pulse exist, or a tendency to syncope or collapse.

The temperature of the cold bath varies from 73° F. to 77° F. for adults. Adults should remain immersed for ten to fifteen minutes. Cold applications are to be made over the forehead during the bath, and cold water should be poured several times over the head. Active rubbing of the surface is to be practiced.

The first bath should be given relatively tepid—86° F. to 90° F.—in order not to startle the patient; then the temperature of the subsequent baths is to be progressively lowered to 80° F., 77° F., 75° F., and 72° F., the physician being guided by the amount of the drop in temperature following the bath.

After the bath the patient is dried and returned to bed without too much covering, but hot-water bottles are to be placed over the legs and feet.

The bath is to be given when the rectal temperature—which is taken every three hours—reaches 102° F. or more. Three to six baths may be given in twenty-four hours.

In elderly subjects and children cold baths should be proscribed and tepid ones ordered. Hot baths are indicated—101° F.—of fifteen minutes' duration in cases of hypertoxemia, in cardiac subjects, and in patients with serious involvement of the liver or kidneys and in excitable nervous subjects.

When for some reason baths cannot be given—as in myocarditis, tendency to collapse, or possibility of syncope followed by death—cold sponging is indicated.

In all infectious diseases a systematic use of intestinal irrigation along with the hydrotherapy should be carried out. The water for the irrigation should be cool or tepid, and two irrigations should be given in twenty-four hours. Their effect is both

cleansing, disinfecting, and antithermic. Two liters of water should be used for each rectal flushing, and this is given with the patient lying on the right side with the left thigh flexed and the right straight.

After cleansing the anal region with absorbent cotton, the catheter is introduced about six or eight inches into the rectum. In adults one liter of water is introduced, 250 cc to 500 cc in children.

In serious cases of toxi-infection, when the patient does not absorb a sufficient quantity of drink and liquid food, daily subcutaneous injections of from 500 to 1000 cc of *isotonic* glucose serum should be given, or intravenous injections of *hypertonic* glucose solutions are to be resorted to, 250 to 300 cc for each injection, which should be introduced slowly. About one hour should be required for the injection, and this may be repeated every twelve or eighteen hours. The effect is markedly a cardiac stimulant readily appreciable by the increase of the blood-pressure; the injection also rapidly reëstablishes diuresis.

In general, diuresis should be favored by the exhibition of diuretic medication—lactose, caffeine, theobromine, in moderate doses.

A third indication of treatment must also be realized, viz., to prevent or combat secondary infections by attempting to reduce the number and virulence of the ordinary agents of those complications. Hygiene and antisepsis tend toward this end. The antisepsis should include the cutaneous surface, mucosa, and care of the various toilet articles used by the patient.

The physician should see that the bowels are emptied once in twenty-four hours, because the intestinal bacterial flora are capable of becoming pathogenic. At the onset of the disease prescribe a laxative—ol. ricini, half to one ounce; magnesium sulphate, one ounce or more, or calomel, 1 or 2 grains—and repeat every four or five days, alternating with enemata of boiled water containing glycerin, soap-suds, or olive oil.

Antisepsis of the mouth, throat and nose is obtained by gargles and irrigations often repeated with a mild antiseptic solution—sol. acid. boric. 2 to 4 per cent, boiled water, etc.

The following ointment may be introduced into each nostril:

℞ Menthol, gr. i;
Eucalyptol, gr. ii;
Camphor, gr. iii;
Boric acid, gr. xlv;
White vaselin, ʒvi.

Irrigation of the nasal fossæ is to be proscribed as it is prone to induce otitis, but irrigation of the eyes with a solution of boracic acid may be resorted to.

If necessary, utilize deep hypodermic injections of caffeine, repeated three or four times in twenty-four hours, or camphorated oil, or large doses of:

℞ Ol. camphorat., 1:10, 50 cc;
Ether sulph., 10 cc.
Inject 2 to 5 cc three times daily.

A new therapeutic measure — proteinotherapy — has recently been introduced. This treatment proposes to combat very different morbid processes, among them acute infectious diseases, by the introduction into the organism of heterogenous albumins — horse's or human serum, human plasma, peptone, boiled milk, and microbic proteins.

By means of proteinotherapy, an attempt is made to create a violent and sudden disequilibrium in the plasmas, the effect of which may be salutary. It is, according to Widal's expression, a treatment by colloidoclastic shock, which consists of "a marked overturning of the humors of the organism" with profound and instantaneous changes of the arterial pressure, leucocytosis, circulation of the hematoblasts, coagulation of the blood, the tenor of the plasma in albumins, all of which is "undoubtedly the reflection of a general crisis, involving all the plasmas, probably even those constituting the living part of the body cells." But he adds: "In spite of the brilliant success that this treatment occasionally obtains in infectious diseases, and regardless of its abortive power which is surpassed by no other treatment, it can-

not as yet be introduced into every-day practice; it is not systematically applicable to all cases of the same disease. The still inexplicable variability of its effects, the impossibility of foreseeing the occasionally extreme violence of its reactions, should cause one to reserve its use for exceptional cases against which all therapeutic resources have remained powerless and whose gravity, therefore, authorizes any kind of treatment available." Such is the advice of Widal, and this should be accepted as the most authoritative.

When the phase of convalescence has been reached, solid feeding may be returned to more or less rapidly according to the nature and, above all, the localization of the infectious disease. In certain cases of typhoid fever the progressive increase of the diet should be slow, all the more so the more severe the case. If albumin is absent from the urine, the amount of milk during the first few days following apyrexia is decreased, and tapioca soup, creams, potato purée or meat jelly are added to the diet.

A few days later, if no digestive disturbances supervene, fresh fish, white meat of chicken or veal, boiled eggs, vegetables, and stewed fruit may be allowed.

A perfect hygiene must be recommended for some time, and always prescribe some general tonic, such as cinchona, kola, glycerophosphates, or arsenic, as sodium cacodylate, and if the anemia persists order some preparation of iron.

3, Rue Bellot, Geneva.

Clinical Experiences with a New Hypnoanalgesic

BY SYDNEY KUH, M.D.
AND
F. J. GERTY, M.D.
Cook County Psychopathic Hospital, Chicago

Though hypnotics and analgesics are perhaps the most used of all drugs, and among the most essential, it is nevertheless true that no entirely satisfactory ones have as yet been found. Perhaps none ever will be. However, every attempt at producing members of this widely used group which secure the desired results and are free from objectionable features is bound to be fraught with interest. Because pain so often is the cause of sleeplessness and abnormal activity, the combined analgesic and hypnotic effect is often desirable. On this account a drug elaborated to combine these two actions has been studied in its clinical effects, and the results are here presented. The chemical name of the drug under consideration is allyl-isopropyl-barbituric acid, phenyl-dimethyl-dimethyl-amino-pyrazolon. Allonal, as it is called, is a fused combination of a hypnotic element, allyl-isopropyl-barbituric acid, and an analgesic element phenyl-dimethyl-dimethylamino-pyrazolon (amidopyrin), in the proportion of one part of the former to two of the latter. It is a yellowish powder, bitter, very slightly soluble in water and easily soluble in alcohol. It is most conveniently administered in tablet form. The tablets used in the present tests have contained 0.16 gm., or 2⅔ grs.

The tests reported here have been on 34 patients, 28 of them hospital patients and six of them patients treated in general practice. The hospital cases were in the wards of the Cook County Psychopathic Hospital. Most of these patients had psychoses. Practically all of them were disturbed and unable to sleep. Some of them suffered pain, others (the greater number) apparently had pain of an indefinite sort.

Clinically the cases were of the following types: alcoholism (6), dementia præcox

(4), arteriosclerosis with and without dementia (5), neurasthenia (1), toxic psychosis (1), general paresis (5), tabo-paresis (3), cerebrospinal lues (2), drug addiction (3), polyarthritis and endocarditis (1), tic-douloureux (1), neuralgia of fifth nerve (1), insomnia, cause unknown (1).

The dosage had to be determined for the cases under treatment. The smallest dose was one 2⅔-grain tablet; the largest was eight such tablets, or 21⅓ grains. Generally 10 to 15 grains was found satisfactory. Usually the whole tablets were given. In some cases it was found more convenient to powder the tablets and sprinkle the powder in water or milk. As the powder is only slightly soluble the mixture had to be shaken and taken immediately.

The following facts were noted upon every administration: the condition of the patient at the time of administration, the amount of drug given, the result obtained with regard to the time of action, the duration and efficiency of the action, and the after-effects. In a few cases the effect on blood-pressure was noted.

There were six patients suffering from the effects of alcoholic poisoning. One had Korsakov's syndrome. All were restless and sleepless and at times noisy. Restraint had been required frequently for these patients. Many patients of this type exhaust themselves, and it is very difficult to control their activity. With doses of the hypnotic on trial varying from eight to twenty grains sleep was secured in every case except one within a maximum period of twenty-five minutes. In the one case, a very greatly disturbed alcoholic, who was exhausting himself rapidly, it was not thought wise to attempt dosage beyond 20 grains. In all of the other cases a very satisfactory sleep was produced which lasted six to eight hours. No after-effects were noted.

In the group of dementia præcox cases, results were not as favorable, but the test was a severe one. There were two patients suffering from the catatonic type of the disease. Both were much disturbed. A dose of eight grains in one case and of twenty-one grains in the other caused quieting, but not sleep. One patient suffering from the hebephrenic form went to sleep within twenty minutes after the administration of an eight-grain dose. On the other hand, another patient, suffering from the paranoid form, showed no effects with the maximum dose of twenty-one grains. Though results in the dementia præcox group were less favorable than with any other group, there was an effect noticed in three out of the four cases.

With the group of arteriosclerotic cases the results were excellent. There were six patients in this group. One of them had severe posthemiplegic pains. The others were very restless, and some of them greatly disturbed and noisy. Doses of eight to twelve grains secured satisfactory sleep in from ten to thirty minutes. In one of these cases a drop in the systolic pressure of 50 mm. of mercury resulted under proper treatment. There were no bad after-effects.

Five cases of general paresis and three of tabo-paresis are included in the series. All of these patients were greatly disturbed, noisy, and could not sleep. The results with this drug were remarkable. The dose used was larger than in the arteriosclerotic group, averaging fifteen to twenty grains. There was a little more delay in securing sleep. The effect usually became apparent in thirty minutes. The sleep produced was satisfactory and there were no bad after-effects noted.

Two cases of cerebrospinal lues showing many symptoms of an irritative nature were also included in the series. The results were practically the same as those secured in the parasyphilitic conditions already discussed.

During treatment for drug addiction one of the most distressing symptoms to deal with is the sleeplessness of the first few days of treatment. On this account, two of the most restless and noisy of the drug addicts were given moderate doses (fifteen grains). They were asleep in forty minutes and remained asleep all night.

In one case of trifacial neuralgia most remarkable results were secured. The patient, a Catholic nun, had suffered from the condition for eight years. During that time eight alcohol injections of the nerve sheath had been tried. The earlier injections gave relief. Later injections gave no marked effect. Morphine deadened the pain but did not completely control it; further, the patient disliked its use. As a temporary measure, until radical operation could be done, allonal was employed. Remarkably small doses (six grains) gave almost complete relief and allowed sleep for periods of eight hours at a time.

In a case of polyarthritis with subacute endocarditis, in which luminal had been used ineffectively for relief of pain, the new analgesic was tried and very satisfactory relief was secured. The blood-pressure had increased to 170 mm. of mercury under luminal, but decreased to normal under the new medication.

In a case of tic-douloureux six grains at intervals, given four times, gave complete relief and quiet sleep.

In a case of insomnia eight grains given at bedtime caused deep sleep. The next morning the patient was too drowsy to get up. On the succeeding night two and two-thirds grains was given. The patient slept all night but was dizzy the next morning and had to come home from work. These are the only unsatisfactory after-effects noted.

In a case of abscessed tooth with considerable pain, and in a case of severe headache, relief was secured with a dose of six grains.

A consideration of the results obtained shows that the effect of an average dose of 15 grains is sufficient to produce sleep in cases of insomnia with restlessness or even more marked motor disturbance. The analgesic action in posthemiplegic, arthritic and tic-douloureux pains, and in the pains of trifacial neuralgia, abscess, and headache, was complete and satisfactory. In these cases up to eight tablets were used. With insane patients it is often difficult to judge the rôle of pain as a causative factor of disturbed states and sleeplessness. In the dementia præcox cases the effect of the drug was far less noticeable than in most of the other conditions studied. In the more violently disturbed states of all psychoses the maximum dose of eight tablets was needed and effects were not always produced with this dose. However, it is well to note that large doses of paraldehyde (3 drachms) and safe doses of morphine and hyoscine had likewise failed to produce satisfactory results in these cases. No effect was noted on either heart action or respiration, even with larger doses. The depression of these functions was certainly far less than with doses of the other hypnotics and narcotics in use in the hospital, even when doses sufficient to produce satisfactory sleep and relief of pain were used. The action, whenever it took place, was rapid; it was usually in evidence within twenty minutes. The sleep produced was not deep. Patients were usually easily aroused even after large doses. There was one exception to this in the whole series. The duration of action was usually eight to twelve hours. The same case in which action was deeper than in the other cases also showed persistence of the action beyond a twelve-hour period. After-effects were only two, dizziness and drowsiness. Several patients complained of dizziness the next morning. One patient was drowsy during the next day, as has already been noted. The dizziness was transient. Difficulty of administration must be considered in disturbed patients. A liquid preparation would do better here.

CONCLUSIONS.

1. Allonal is most effective in those cases in which there is restlessness and sleeplessness due either to pain or to psychosis. Its effect is diminished in the more violently disturbed cases. In these its action is on a par with the other hypnotics and narcotics. It is here probably less effective than morphine and hyoscine, but also less dangerous.

2. Single doses up to 20 grains are safe.

There is a large margin of safety, and the dose can be satisfactorily scaled according to the degree of effect needed.

3. Depression of vital functions was not seen even with larger doses.

4. After-effects are few.

5. The drug deserves a larger trial, with closer checking of the exact degree of effect on the vital functions, and a study of the effect in habit production.

Three Points in the Study of Adult Patients[1]

BY H. A. HARE, M.D.

Professor of Therapeutics and Diagnosis in the Jefferson Medical College of Philadelphia

There are three themes which I wish to present to your attention. The first deals with the relative importance of systolic and diastolic pressures. It is becoming increasingly evident that the diastolic is in many respects the most important, for it represents what may be called the true or constant pressure, added to which is the pulse pressure, so-called, at each systole. It is important because it indicates the resistance against which the heart has to push the column of blood, and thereby we gain a definite idea of the amount of work required of the heart both at rest and under effort. It is also important because if repeated examinations reveal a high diastolic pressure, there is reason to believe that this pressure is due to arteriocapillary fibrosis rather than to vascular spasm, for when spasm of the vessels is the chief factor it is prone to vary greatly at different times and under different circumstances. Again, a high diastolic pressure is important, because in my experience it has a more important prognostic value than a high systolic pressure for reasons already given as to cardiac stress, and also because if it is fairly constant it is almost always closely associated with renal disease in the form of contracted kidney. I think many of my hearers must recall cases in which diastolic pressures of 120 have had a far more rapid course toward a fatal end than those which have presented a systolic pressure of 180 and a diastolic of 100 or 110. Certainly a large number of persons maintain systolic pressures 20 to 40 points above normal for years without seeming to have serious, if any, trouble. In other words, a diastolic pressure of 110 or 120, which is only 10 to 20 points above normal, for a man of fifty or sixty is greater in significance than a systolic pressure of 10, which may be said to be 30 or 40 points above normal.

How far diastolic pressures can be utilized to determine the state of the heart is not easy to determine clinically. It goes without saying that a very feeble heart cannot maintain pressure of any kind, and as death approaches the diastolic pressure falls; but on the other hand, have we not all seen cases of so-called rupture of compensation due to valvular lesion in which many of the symptoms of this state of impaired circulation were most obvious, and yet the sphygmomanometer has revealed a fairly high systolic and diastolic pressure, the chief failure not being shown always in a low diastolic pressure but in an impaired systolic pressure, so that there is a definite fall in pulse pressure. How far systolic pressure can be utilized to determine cardiac power is in my mind doubtful, because all of us have seen cases of high pulse pressures when we have been confident that myocardial degeneration is well advanced and when the electrocardiograph certainly has revealed degenerative changes as well. Indeed, from a clinical point of view, I think it may be fairly stated that those patients who have a tremendous swing in pulse pressure are quite prone to sudden cardiac death, whereas those who have a constantly maintained diastolic pressure are more prone to come to their end as a result of an apoplexy or an attack of uremia. I am

[1] A paper read before the Medical Society of the State of Pennsylvania.

conscious that by these remarks I may induce much discussion. That is my intention.

Closely associated with the matter just discussed is another, namely, that in many instances a high mean pressure is a deliberate intent on the part of the body to maintain the circulation through thickened or fibroid vessels. It is what I have called a "pathological norm," and the patient suffers if we succeed in lowering what nature has raised with a definite object in view.

Again, closely associated with this subject is the value of a very great pulse pressure as a diagnostic aid in cases of aortic regurgitation. So far as I know there is no state in which the difference between the pressures is as great as in this disease. Much more important is the extraordinary difference between the systolic pressure in the arms and the legs when the patient is in the dorsal decubitus, so that hydrostatic effects are eliminated. Immediately after Gibson of Edinburgh made this interesting observation I published a confirmatory paper of his studies in this country and came to the conclusion that this remarkable difference in the arm and leg pressures was pathognomonic of aortic regurgitation. I still hold to this view when the matter of valvular disease is debated, but in the great influenza epidemic it is noteworthy that cases were met with presenting to some degree at least this sign, although physical signs of aortic regurgitation or a cardiac history were entirely absent.

A very interesting point in this connection, discovered by me when I followed Gibson's lead, is that the pressure in the arm and leg becomes identical if the patient is given a hypodermic injection of nitroglycerin or if the legs are put in a hot pack. Again it is of interest to observe that this relaxation of the blood-vessels in the legs does not cause the patient any distress, as one would suppose it would do if we regard the high leg pressure to be designed by nature to maintain the circulation in the vital parts of the body. I confess that I have no adequate explanation of these two curious clinical phenomena. *A priori* one would suppose the high pressure in arms and the greatly higher pressure in the legs are compensatory, but, if so, such a pressure would seem to tend to increase the regurgitation at the aortic orifice. Here again is a subject for debate.

Last of all we come to the matter of the specific gravity of the urine as an important question in diagnosis and prognosis. Of course we have known for a generation or two that polyuria with a low specific gravity at night has renal significance, but we owe a debt to Mosenthal for emphasizing the importance of studying the specific gravity not in a single specimen or in a 24-hour specimen, but in two-hour specimens in the daytime and a whole night's specimen, with limitation of fluid intake particularly in the evening. Such studies are in a way more important than the study of albumin and casts because they show whether the kidneys are able to respond to the calls made upon them. A normal kidney varies from hour to hour in its activities according to the task set it. An abnormal kidney fails to do this. As I have said to my classes, a normal kidney is like a lad who when sent on an errand can run, walk, skip, and jump, whereas a lame boy has to maintain a constant and impaired gait to get there at all. One of our medical staff at the Jefferson Hospital, Dr. Harold Jones, has done much interesting work on this subject, and if he is here I trust he will discuss it because his experiences are interesting and my time has quite or nearly expired.

If I have seemed to be too brief in the discussion of these topics, and if this brevity exposes me by chance to criticism in any remarks which may follow, my excuse must be that the chairman has already given vent to a sound which in medical language is called a "prodrome." This prodrome is indicative of the fact that he is beginning to think that I have reached the period of "crisis."

It is better to be self-limited than to pass through a lysis during which time anything may happen according to the will of the presiding officer.

Editorial

CHRONIC RENAL DISEASE.

It may be stated without fear of contradiction that the increase in our knowledge of renal function during the last ten years is greater than the increase which occurred during the preceding thirty or forty years. It is also true that these further investigations have not very materially increased our ability to treat patients suffering from so-called chronic nephritis with much greater success than that of our predecessors.

It is a fact that certain matters in connection with diet are regulated more rationally at the present time than they have been heretofore, but so far as drugs are concerned little advance has been made, which is not surprising, because almost every case of chronic renal disease presents itself for treatment after the condition has been present for a long time, when degenerative changes are fairly far advanced, and no one who really understands therapeutic possibilities can expect a drug to make new tissues out of old or to restore to normal function cells which are hopelessly diseased.

The Great War, and other conditions of life within the last decade, have enabled medical men to gather together enormous masses of statistics. Thus, it is pointed out in a paper recently published in the *British Medical Journal* by Maclean of London, that he is able to present results obtained from examining patients applying for pensions, because of nephritis, to the British government. These investigations cover a period of three years and some of them as long as four years. Over 17,000 complete examinations have been carried out, and, therefore, a sufficiently large number of patients have been examined to put aside the danger of erroneous conclusions which are apt to arise from limited statistics.

Because we have long taught that the term "nephritis" was a most unfortunate one when applied to chronic forms of degeneration in the kidney, we are particularly glad to see that Maclean, while using this term chronic nephritis, nevertheless emphasizes degeneration rather than inflammation. He recognizes, as every one has for many years, that there are two distinct types of chronic renal disease. One is characterized by edema and the accumulation of fluid in the serous sacs with, perhaps, no other important manifestations, or associated with the edema some cardiac and general weakness, with, as a rule, death occurring within a period of two years. This is what he calls the "hydræmic" type of nephritis, although commonly it is referred to as parenchymatous nephritis. He emphasizes the fact (by no means new, but which has not received sufficient attention) that in most of these cases an analysis of the blood and of the urine fails to show marked evidence of renal inefficiency except as to the elimination of salts and water.

It is true that such urine contains large amounts of albumin and many casts, and there is not much associated cardiovascular change, and, equally important, comparatively little or no increase in the retention of nitrogenous bodies in the blood. Oftentimes the urea concentration test shows that the kidney is capable of concentrating urea about as well as that of the normal subject. On the other hand, when a definite picture of that type of chronic nephritis, often called chronic contracted kidney, to which Maclean applies the term "azotæmic," is presented, here, as we all know, dropsy is most rare, and when it occurs late, if at all, it is dependent not upon changes in the blood or in the kidneys as much as upon the presence of a failing heart. In contradistinction to the hydræmic form there is no retention of salt nor of water, and again in contradistinction there is an increase in the nitrogenous bodies in the blood, and great impairment on the part of the kidneys in the concentration of urea. Normally the kidney concentrates urea in the urine to an extent seventy to one hundred times greater

than the concentration of urea in the blood-stream, but in chronic contracted kidneys this concentration is much impaired, so that it may not be as much as ten times the blood content. Albuminuria, as we all know, is scanty and at times absent; casts may be present, but are often absent.

In the first type salts and water are not eliminated, and in the second type the difficulty lies in the elimination of products of tissue break-down.

We think that Maclean does well to recognize that there is also a third classification, which he calls a "mixed type." This classification, of course, has been recognized by many clinicians and pathologists for years, and, indeed, a very considerable proportion of patients fall into it, which is what one would expect, as it is difficult to comprehend how it would be possible for kidneys to be gravely diseased in some part without being affected in adjacent parts.

Curiously enough, because we are prone to think of the indications of tissue break-down as being toxic, the prognosis as to the duration of life in the azotæmic type is fairly good, life continuing in many instances for fifteen or twenty years, whereas in the hydræmic type fifteen or twenty months is often the limit of existence.

Maclean thinks, and we agree with him, that in studying these cases careful attention should be given to the general condition and symptoms, to the cardiovascular condition as represented by blood-pressure, the position of the apex beat, the character of the aortic second sound, and the state of the peripheral vessels; and, again, that the renal tests should cover blood urea estimation, the ordinary examinations of the urine, the urea concentration test, and, he thinks in addition, the diastatic test, although he admits that this is not of great value.

As we all know, the percentage of non-protein nitrogen, or of blood urea, should be somewhere between 20 and 40 mg. per cent, although in old age this may be exceeded without indicating grave trouble. In direct proportion to the increase in these percentages however is the prognosis evil, but we think that there has been heretofore too much inclination to base diagnosis and prognosis upon a single blood estimation, since it has been shown that these blood quantities change very materially from time to time, although if they are constantly high these variations are of little importance.

Unfortunately, the estimation of the non-protein nitrogen in the blood is too technical a matter for the general practitioner to pursue, and for this reason it is thought that the urea concentration test is to be substituted for it in many instances.

There are those who doubt that this test has the value assigned to it by others. It consists, it will be recalled, in having the patient, after he empties his bladder, take 15 grammes (½ oz.) of urea dissolved in a few ounces of water. The urine is then collected at the end of each hour for one and two hours, and the urea content estimated. The second-hour urine usually shows the highest concentration and is the most valuable for the urea estimation; the first hour's urine being free because of the diuresis set up by the urea. If after the ingestion of this quantity of urea a sample of urine containing over 2 per cent is obtained, Maclean thinks that it may be considered that the renal condition is fairly good; that if 2.5 per cent is found it is normal, but that if it is 1.5 or only 1 per cent it is distinctly below normal, and when 1 per cent is present the outlook is grave.

So far as associated cardiovascular changes are concerned, we are glad to note that Maclean well recognizes that there are many cases of chronic contracted kidney in which cardiovascular changes are almost entirely absent, and other instances of cardiovascular change with high blood-pressure which seem to be independent of any material kidney disease.

Turning from these remarks, something may be said in regard to treatment, which, as we have said before, is still along old lines. Maclean thinks that warm clothing and hot baths, careful attention to the

bowels, avoidance of exposure to cold and wet, and, if possible, residence in a warm climate, no doubt frequently prolong life in both types. Of course, this is a reiteration of what we already know, and equally of course, in many instances these various factors cannot be obtained.

The point in regard to this whole matter which we wish to emphasize most forcibly, however, is in turn emphasized by Maclean and is one which we have more than once called attention to in these pages, namely, the general idea which is disseminated through the profession that in the presence of either form of renal disease the protein constituents of the diet should be very low or completely stricken out. At present it would appear that this practice is quite erroneous, and that while proteins should not be taken to excess they should be distinctly within the bounds which physiologists have shown to be the normal intake in relation to carbohydrates and fats. This is self-evident, but without doubt the habit, or custom, of cutting out meat in the diet does little good and often does great harm by producing weakness and inability to resist fatigue and infection. It may be true that the use of the strict starch diet will diminish the blood urea and non-protein nitrogen, but this does not influence uremia, which is due to some as yet unknown cause, and the improvement is often not permanent. Under these circumstances the condition of the patient is somewhat akin to the state of the diabetic, who when deprived of all carbohydrate begins to live on himself by making sugar out of his proteins and fats.

In the hydræmic type, or parenchymatous type, the large amounts of albumin passed daily need to be compensated for by protein intake, and if not compensated for the body may turn on itself and rob itself of protein.

As we have pointed out in previous editorials, the application of the salt-free diet so-called is limited to the hydræmic type, and is not applicable even in this type unless an examination of the urine shows that there is retention of the chlorides, because the kidneys are unable to eliminate them, the dropsy being an effort of nature to keep the salt sufficiently dilute in the tissues to maintain normal tonicity. In the contracted kidney a salt-free diet is almost never needed and is to be condemned.

Last of all, we are glad to see that Maclean, in discussing decapsulation of the kidneys, limits the application of this measure to the hydræmic type. We have discussed this more than once in these editorial pages. It is not clear as yet why certain of these patients who are markedly dropsical stand the operation well and are greatly benefited by it, while others seem to have obtained little benefit.

We come, therefore, to the final conclusion in regard to the treatment of these cases to which we referred at the beginning of this note, namely, that it is largely based upon climatic and dietetic measures with directions as to mode of life which will be as nearly hygienic for an individual with impaired renal function as it is possible to obtain. The more we study this question the more we are convinced that the chemical estimations of the condition of the urine and of the blood, in addition to its study for albumin and sugar, are to be our guides both in deciding as to whether a surgical operation is justifiable for some intercurrent state, or as to measures which should be taken for relief, and as to prognosis concerning the duration of life. In other words, our feeling is that these analyses surpass in value the use of any of the dyestuffs in determining renal efficiency.

THE BRONCHOPULMONARY COMPLICATIONS FOLLOWING OPERATION.

Closely allied with the subject of tonsillectomy, discussed in the March issue in an editorial note, is the theme of complications in the respiratory passages after all operative procedures. For this reason we think that our readers will be interested in a discussion of this matter which recently took place before the Section on Anesthetics of the British Medical Association. In this

discussion it became evident that there still exists much difference of opinion as to the frequency and cause of bronchopulmonary complications after operation.

Much of the statistical material which has heretofore been gathered is of little value, because the methods employed by different statisticians have not been identical.

There can be little doubt that bronchopulmonary complications are factors which must always be considered, but on the other hand, as pointed out by Lamb, who opened the discussion to which we have referred, the frequency with which such complications occur is less than most people suppose. Thus in 2400 patients at St. Thomas's Hospital, there were apparently only 10 patients with such complications. On the other hand, Smith of Liverpool in 441 major and minor operations had a morbidity of 7.5 per cent in major cases and 2.2 per cent in the minor ones, with only 1.1 per cent true cases of bronchopulmonary, the rest being simply instances of cough without physical signs. Lamb also quotes Vedin of New York as reporting 120 patients with operative pulmonary complications, or 1.05 per cent in 7900 operations. These complications consisted of lobar pneumonia, bronchopneumonia, acute bronchitis, various types of pleurisy, and embolism of the pulmonary artery. Out of these 120 cases 29 died, 10 of them being from pulmonary embolism; but after all the total morbidity was only 0.36 per cent out of the 7900, and lobar pneumonia was by far the most frequent complication, which we think is unusual since bronchopneumonia is commonly considered the more frequent malady under these circumstances.

So, too, Lamb quotes Whipple as reporting 97 cases of pulmonary complications in 3719 carefully studied postoperative patients, or 2.6 per cent, and quotes reports from nine different observers in which the morbidity after celiotomy varied from 0.5 per cent to 8 per cent.

Among the other interesting points made by Lamb is the statement that Mikulicz, because of the somewhat frequent occurrence of postoperative pneumonia, gave up ether and returned to chloroform with the thought that the pneumonia was due to the irritant effects of the former drug, but to his surprise he found that he had more complications with chloroform than with ether. He then changed to local anesthesia in all cases, and to his still greater surprise found that lung complications increased instead of diminished, so that he had 27 cases in 114 laparotomies.

Rood, after a personal experience with 8000 cases, found that bronchitis and pneumonia followed local anesthesia, and Whipple has also reported six such cases.

Again, it is interesting to learn that, from a series of experiments upon animals, Mikulicz concluded that ether does not in reality irritate the lower respiratory passages even when given to animals through a tracheotomy tube, while on the other hand Whipple asserts that there is no doubt that ether is the most irritating of the anesthetics.

Lamb thinks that an important point in connection with this matter lies in the presence of nasal or bronchial catarrh prior to the use of the anesthetic, and states that from personal experience he finds no irritation when in health, but great irritation when he is suffering from catarrhal symptoms. Much also depends, of course, upon the skill with which the anesthetic is administered.

We have long taught that far too little attention is paid by anesthetists and surgeons to the condition of the oropharynx prior to the administration of a general anesthetic. We believe it to be true that in the vast majority of instances no effort is made to see that this area is as aseptic as possible. Frequently the tonsils, if examined, would show that they were infected, or that pyorrhea was present, or again that there was some subacute or chronic septic process in the nasal chambers. When any anesthetic is given, particularly ether, which tends to induce free secretion, there is a pouring out of liquid mucus which is necessarily laden with pathogenic organisms,

and anesthesia having been induced the glottic opening no longer acts as a guardian to protect the lower respiratory passages. If before an operation for a period of two or three days, a weak solution of tincture of iodine in the water was used as a mouth-wash and gargle, preceded by a dilute gargle of peroxide of hydrogen, doubtless many complications could be avoided, and where definite infection is discovered in the tonsils or about the teeth, this discovery should make the surgeon pause before performing an operation unless the condition is an emergency.

Discussing Lamb's paper, Flemming, in speaking of the use of local anesthetics, emphasizes the fact that strong solutions of cocaine in laryngeal surgery definitely increase the risk from septic material, and every one who took part in the debate seemed to agree with the general proposition that pulmonary complications are far more frequent after abdominal operations than after operations upon any other part of the body except the thoracic contents.

Many years ago the late Dr. Horatio C. Wood, when lecturing on therapeutics, used to instil into the minds of his students the dangers of chloroform by stating that if any of his graduates used chloroform and had a catastrophe he would not testify in their defense. Of course this was an excessive way of stating the proposition, but we note with interest that Paterson of London, speaking as an operating surgeon forty years after Wood's remarks, declared that any person using chloroform without sufficient reason should be criminally prosecuted and that gas and oxygen were the anesthetics of choice in abdominal operation.

Pinson of Manchester emphasized the influence of age and season as factors, the pulmonary complications of the decade between 60 and 70 being very high, but the influence of the season of the year being comparatively slight, since 26 bronchopulmonary complications occurred in warm weather and 30 in cold weather.

Last of all, attention may be called to another statement by Flemming, to-wit, that what the English call "chesty" conditions without definite physical signs are by no means uncommon after anesthesia. How much these are due to the anesthetic and how much to the operation it is difficult to determine, but he emphasizes the fact that the more we study this subject the more we are impressed with the idea that all our present anesthetics if used in high concentration or over prolonged periods of time produce toxic effects and tend to depress vitality, thereby predisposing to infection.

Possibly further investigation upon the influence of anesthetics upon what might be called microscopical tissues will give us much interesting information. Heretofore, all studies have been devoted to the heart and lungs or central nervous system, but Flemming points out that he has made studies upon the ciliary movements of the buccal membrane of the frog and finds that it recovers more quickly after ether than after chloroform, and that in free-swimming protozoa which move by cilia the cessation of movements caused by ether is often temporary, whereas that produced by chloroform is generally permanent.

The effect of an anesthetic upon ciliated epithelium in the air passages is difficult of study, but it may be that by arresting their normal movement from below upward these drugs may cause deeply penetrating infection of the smaller bronchioles.

THE BREATH-HOLDING TEST AS A GUIDE IN DIAGNOSIS AND TREATMENT.

Physicians of experience know full well that shortness of breath or dyspnea may depend upon one or several causes in a given case. Aside from the shortness of breath due to severe exercise, we meet with the manifest dyspnea of failing compensation in valvular disease, the impaired circulation of myocarditis, the toxic dyspnea of advanced renal disease, and the equally toxic shortness of breath characteristic of approaching or well-developed diabetic

coma. The dyspnea of diabetic intoxication is usually met with so late that other manifestations of this state antedate it, and it usually indicates that the patient is in a desperate condition. It has less grave significance in renal disease and still less in cases of valvular disease with ruptured compensation, provided the patient can be put at rest and given adequate cardiac support.

It is not our intention to deal at this point with the various factors concerned in the presence of acidosis as a cause of dyspnea, but rather to point out that certain clinicians have attempted to determine the gravity of a patient's condition and even the cause of his dyspnea by tests which consist in holding his breath. The directions usually followed are that after a rest of five minutes a full breath should be taken and held as long as possible, and the statement is made that the average healthy person is able to hold the breath from 45 to 50 seconds; that a period of 35 to 45 seconds indicates beginning acidosis; 25 to 35 seconds mild acidosis; and 15 to 25 seconds frank acidosis; while a period of from 10 to 15 seconds shows the patient is in a perilous state in certain cases of renal disease and diabetes.

It is further stated that patients with cardiac disease who have adequate compensation, get along very well if their breath-holding time is from 25 to 35 seconds, provided they lead a life which does not throw any more burden upon the heart than it is capable of standing.

Our experience in making these tests has been very similar to an experience years ago when we attempted to use the spirometer. A patient, as the result of a few days' training, can greatly increase his ability to hold his breath and his vital capacity. Many dyspneic patients are so anxious that they are unable to hold the breath as long as they could hold it if anxiety was not present. Others seem too stupid to know how to hold the breath beyond a certain point. The records which are first obtained, therefore, with the average patient are almost useless. Where the patient is seen frequently, it may be that they can be utilized to obtain fairly accurate information. The difficulty lies in the narrow margin between normal and abnormal. The average individual in health will find that the difference of ten seconds is a very material one in his comfort. Wide variations are, of course, of value, but in such cases other manifestations of disease are usually so positive that the test is unnecessary.

It is interesting to note that the use of full doses of bicarbonate of soda by mouth in both renal and diabetic shortness of breath distinctly increases respiratory capacity, and a noteworthy point is that such dyspnea is not attended by cyanosis. Indeed, it will be recalled that in diabetic dyspnea the color of the lips is often unduly red.

Fitzpatrick has recently reported his results in a large series of obstetrical cases, and concludes that the average parturient woman has a breath-holding pause of 25 seconds, although in one cardiorenal case the pause was only 3 seconds, and in another patient, who was a primipara but a noted athlete, the patient was capable of holding the breath 65 seconds. The average cardionephritic pregnant woman was found to have a breath-holding test of 11 seconds, and in the toxemias of pregnancy the rate was about 15 seconds. He believes that any pregnant woman who has a breath-holding test of less than 25 seconds should be carefully investigated.

All of these studies possess a good deal of interest and, carried still further, may be a distinct addition to our methods of determining the prognosis in a case and how active our treatment should be.

As we have already pointed out, the method is open to fallacies which depend upon stupidity, ignorance, nervousness, or faulty chest development.

Those who are sufficiently interested in this subject to wish to pursue it further are referred to an interesting and complete paper on this subject which appeared in the *California State Journal of Medicine* for November, 1922, by McMechan of Avon Lake, Ohio.

THE VALUE OF THE BULGARIAN BACILLUS AND THE BACILLUS ACIDOPHILUS.

Our readers will recall that a few years ago when Metchnikoff advised the use of the lactic acid bacillus for the purpose of preventing intestinal putrefaction, his suggestion was received with great enthusiasm, the more so because this distinguished investigator expressed the further belief that intestinal putrefaction and the resultant absorption of poisons tended to hurry the development of senility. That Metchnikoff's hopes were far in excess of reality has long since been proved, and we have come to a more correct conception of the actual value of the lactic acid bacillus in therapy.

As we have pointed out on previous occasions, this bacillus is manifestly of no value, but harmful, where there is fermentation of the carbohydrates, since it naturally tends to increase the disorder, finding its field of usefulness where there are putrefactive processes of the proteins. A very large amount of clinical evidence is at hand to show that properly used the Bulgarian bacillus has a definite value. Comparatively recently, however, various laboratory investigations have indicated that it is not possible to implant the lactic acid bacillus in the alimentary canal at least so far as the colon is concerned, and so the conclusion has been reached that the value of this method of medication is imaginary and not real. We have never believed that the lactic acid bacillus itself attacks the organisms which we wish to destroy, but that its effect is to induce an acid reaction unfavorable to their existence, and so far as we know little evidence has been adduced that the lactic acid bacillus does not grow and produce acid in sufficient quantity to be of value even although the bacteriologist is unable to find the lactic acid bacillus in the stools.

Further investigations, however, have proved that the Bacillus acidophilus is capable of being implanted in the alimentary canal of man, multiplying and producing an acid reaction, and so it would appear that this microörganism is to be used in preference to the Bulgarian bacillus, which, of all the lactic acid bacilli, has been considered the one of choice because of its vitality and activity.

At first glance we have here an apparent contradiction between clinical results and bacteriological studies so far as the lactic acid bacillus is concerned, but second thought would seem to indicate that while the bacteriologist may not be able to find the lactic acid bacillus in the stools, this does not necessarily prove that the administration of this organism is futile, since the lactic acid it develops produces therapeutic results even if the organism dies before it reaches the colon.

INTERNAL DERANGEMENT OF THE KNEE-JOINT.

Under the guidance mainly of Sir Robert Jones and stimulated thereto by the brilliant results obtained by him and by the confidence which the profession places not only in his teachings and his surgery, but in the judgment dictating the latter, and the return to function which he usually accomplishes, active surgical intervention has been practiced upon the knee-joint in conditions not crippling with a frequency suggestive of a wave of enthusiasm not entirely justified by the results obtained therefrom. It is, therefore, a matter of great interest that the results at the hands of a number of surgeons of competence should be assembled and analyzed by one not consciously, or even subconsciously, influenced by a predilection to look kindly upon the results of his own handiwork.

Mitchiner *(British Journal of Surgery,* October, 1922) has endeavored to follow up cases of internal derangement of the knee-joint operated on in St. Thomas's Hospital during the years 1912-21 inclusive. The number covered by this inquiry is 225; replies were received from 134; of these be-

tween 80 and 90 reported for inspection and were carefully examined not only as to function, but often by the *x*-ray. Of the total number the large majority were males. There was but one fatality, that of a man from whose joint loose bodies were extracted. He developed suppurative arthritis and subsequently pyemia. There were 39 cases of loose body, 125 cases of torn or displaced semilunar cartilage, 25 cases of hypertrophied synovial fringes, 30 cases no definite intra-articular lesion found, and four cases of torn crucial ligaments.

Two operative routes were employed: the first, the lateral cut over the affected cartilage, either transverse or vertical; second, the vertical median incision with splitting of the patella, the latter giving freer access to the joint and permitting complete removal of the damaged cartilage. This is of considerable import since in more than 5 per cent of the cases there was recurrence of trouble due to the posterior fragment remaining after lateral operation. This fragment exhibited a tendency to calcification, with a resultant, constantly recurring irritation of the joint. Concerning the immediate after-results of operation the results after the transpatellar route are more satisfactory, although the knee opened by this route is more painful and more liable to effusion for at least one year.

As to the results of the cases either presenting themselves or making reply to queries, 23 of them operated on for loose bodies reported as follows: In 14 the results were perfect, to wit, complete function, and no reaction following strain. Five reported fair results, joints good for ordinary service, but react to strain; four were no better than before the operation. Of the 74 cases reporting for operation for torn and displaced semilunar cartilage, 57 had perfect results, 14 fair results, and 3 were no better than before operation. In the 16 cases operated on for hypertrophied synovial fringes, in 6 the results were good, in 7 fair, and in 3 unsatisfactory. Of the 18 cases in which no intra-articular lesion was found, the results were good in 5, fair in 3, and unsatisfactory in 10. Of the three cases reporting for operation for torn crucial ligaments, it is surprising to note that the results were good in two and fair in one.

Bearing on that group of 18 in which nothing was found on operation, Mitchiner observes that in only four of these was the surgeon content to close the joint without doing anything further than explore. All four of these had good results. The remaining good case was one in which hypertrophied synovial membrane was removed. The remaining 13 cases in which nothing wrong was to be found, but in which the remaining semilunar cartilage was partially excised, all gave subsequent trouble. Of the whole 225 cases only one suppurated, with fatal result, and in one there was a following hematoma. The latter case recovered with a useful limb, its motion being limited to about 50 per cent of the normal. Postoperative osteoarthritic changes, or aggravation of those previously existing, were observed in the operated joint in about half the cases examined, though as a rule the patient complained of no symptoms incident to these changes. The author further observes that pain and effusion in the joint subsequent to operation, occurring in attacks and following unusual or undue exertion on the part of the patient, were noted or complained of in nearly all cases operated on in the last three years, *i.e.*, 1919-21. This led to inquiry being made among all the other patients operated on at earlier dates where no such complaint was made, and it was elicited that in the majority of these cases, now quite cured, pain and effusion in the knee-joint had occurred on exertion for from two to three years after operation, and that in many cases this effusion had taken considerable time to be absorbed. Such unwelcome occurrences became less frequent toward the end of the second year after operation, and then ceased, so that from the third year onward the patient could indulge in all forms of exercise without any untoward results.

In those cases in which the joint had been fixed by splinting for any length of time after operation, there was frequently

marked and persistent muscular wasting around the joint, and in all such cases the convalescence had been much prolonged, and the period during which attacks of pain and synovial effusions were liable to occur was protracted, or even permanent.

Only in the case where hemarthrosis and subsequent suppuration supervened was any ill effect noted from non-fixation of the joint after operation; and early movement and light massage or faradic electrical treatment seemed to have benefited the patients in promoting rapid absorption of effusions, amelioration of pain, and normal return of tone to the muscles around the joint.

Lastly, it was found that most of the women, and many of the men (who as policemen had to take part in physical drill), complained of pain when the knee was in extreme flexion, as on kneeling or squatting back on the heels, and inability to start rising from these positions. In all cases where this disability was complained of, there were osteoarthritic changes in the joint, though in the majority nothing else was complained of except the pain on flexion.

THE TREATMENT FOR DRINKING PURPOSES OF CONTAMINATED WATER.

There is such a wide-spread prejudice against the addition of what are called chemicals to our water for drinking purposes that, did the people of our large cities know that with few exceptions all the water they use is chlorinated, there would probably be a protest much more wide-spread and violent than obtains at present. It is recognized that all surface waters are potentially dangerous, that filters are vulnerable, requiring expert treatment. The people of the community as a rule, to which there are few exceptions, should have the added protection of proper chlorination to provide against a breaking down of the filters, which even if properly supervised do not afford absolute safety when overloaded. A filtered water may have added to it a proportion of chlorine so small that it cannot be detected by taste or smell, and, when chlorination is properly supervised, it may continue for years without the bulk of the citizens having, unless they take the pains to investigate, any knowledge that they are thus protected against typhoid, dysenteric affections, and possibly other water-borne maladies.

Even in the recent periods of drouth, which particularly favor the development of typhoid, there are no reports of large municipalities supplied by water companies under proper supervision suffering from endemics of this disease. Each outbreak has been traced and has been found due to polluted wells, usually in limestone regions, or to milk infected by the hands of carriers, or those exhibiting disease in its walking phases, and not subsequently rendered innocuous by pasteurization. With the growing spread of outdoor life, manifest by the establishment of thousands of camps, either permanent or over night, and with the use of the surface water or the springs or wells by these campers, there have been many cases of typhoid and probably of enteritis developing incident to the popular belief that a cool and clear water coming from a mountain region, or a spring bubbling from the surface of the ground, is safe. It is difficult to dispel popular belief and still more difficult to persuade any human being, even the doctors themselves, that the chances of infection are sufficiently large to justify some trouble in avoiding them. In this relation the practice in the army, which most successfully protects its men against water-borne diseases, is worth considering.

Hitchens *(The Military Surgeon,* December, 1922) commenting upon the sealed tubes of calcium hypochlorite, each containing one gramme and carrying from 30 to 32 per cent of available chlorine, and the circumstance that one added to 36 gallons of water as contained in a Lyster bag represents a dosing of two parts of chlorine per million parts of water, which is adequate for clear filtered water, observes that this may be entirely inadequate for heavily

polluted water, since organic matter contained therein seizes the available chlorine and thus protects the bacteria. He observes that owing to the loose combination of the chlorine with the calcium salt there may be a dissociation, chlorine being liberated in the form of a gas which may explosively escape as soon as the tube is opened. Time particularly works in this direction. The time limit he gives is about a year. He has some criticisms against the methods of chlorination usually used and proposes a modification as follows:

Set up the bag, adjust the cover, and strain in the water to within about four inches of the top.

Get a clean stick or something of the kind for stirring the water. Place it down in the water and let it stay; do not take it out at any time.

The treatment of the water consists of adding the contents of tubes of calcium hypochlorite (lumpy powder in brown glass tubes), testing the water in an ordnance cup with orthotolidine (0.1-per-cent solution in 10-per-cent hydrochloric acid), which is a liquid contained in vaccine ampoules; then, when the right color is obtained, waiting thirty minutes and adding sodium thiosulphate to remove the excess of chlorine and destroy its odor and taste.

The method is as follows; carry out each step carefully: (*a*) Fill an ordnance cup about half full with water from the bag. (*b*) Take one of the brown glass tubes of calcium hypochlorite, break it while holding it over the cup, and dump its contents into the cup. Stir the powder into the water with a spoon and pour the water from the cup into the bag.

Stir the water in the bag thoroughly, then run three cupfuls through one of the faucets and pour the water back into the bag. Draw off a cupful of the water through the same faucet. Fill the cup to within half an inch of the top.

Break the tip off one of the ampoules of orthotolidine and shake the fluid into the cup of water. (This is a clear fluid in a tube such as those used for typhoid vaccine.) Stir this up in the water, using another clean, dry spoon.

As the water is stirred it begins to turn yellow. This yellow color tells by its intensity whether or not enough tubes of calcium hypochlorite have been added. One may be enough, but it may take two or three or even ten or more. It is necessary then to add one at a time, testing in between, until the yellow color deepens quickly to a distinct orange or orange-red color. A lemon or canary-yellow means less than enough, and another tube must be stirred up in a cup of water and added to the bag as before.

If the color is lemon-yellow, fill another cup half full of the water, break another tube of calcium hypochlorite into it, stir it up and pour it into the bag. Stir the water in the bag, wash out one of the faucets three times, then fill the cup and shake into it the contents of an ampoule of orthotolidine. Stir with a clean, dry spoon as before and look for an orange or orange-red color. If the color is again, at the end of about a minute, only a lemon-yellow, put in another tube of calcium hypochlorite, and keep doing this until the test no longer shows a lemon-yellow but gives an orange or orange-red.

When the orange or orange-red color comes up, enough calcium hypochlorite has been added, and the water will be ready to drink in thirty minutes. Take the time and prepare the solution which removes the excess of chlorine—the chlorine gives the water its peculiar odor and taste—from the water.

This neutralizing material is sodium thiosulphate, and it is supplied as crystals in clear sealed tubes. Fill an ordnance cup with water, break one tube and shake the crystals into the cup. Stir with a spoon to dissolve, and let this cup stand until the thirty minutes are up.

At the end of about twenty or twenty-five minutes begin washing out the faucets. Run five cupfuls of water through each and pour the water back into the bag.

At the end of thirty minutes pour the

dissolved sodium thiosulphate into the bag and stir the water thoroughly. The water is now ready for drinking.

The laboratory has shown that members of the colon-aerogenes group of bacteria are destroyed in even heavily polluted waters thus treated and tested. The suggestion is made as to the emergency treatment of water by iodine which is recognized as an efficient means of colon destruction and for camping parties, members of which usually carry the standard tincture containing 7 per cent of iodine, which will serve as a ready means for safely quenching a thirst which may be overmastering in the presence of a bubbling stream.

Hitchens states that one drop of this tincture to a quart of even raw Potomac water will render it safe for drinking in half an hour. The water is entirely harmless, except possibly for the exaggerated hyperthyroid. In the line of prevention of disease campers should be assured of the safety of the water. The boiling process, though highly efficient, is time-consuming, troublesome, and likely to be neglected. The sterilization by chlorine is simple, swift, if properly checked assured, and gives rise to neither taste nor odor. Iodine in the proportion given is apparently equally efficient.

SYPHILIS IN RELATION TO OTHER INFECTIONS.

Syphilis being now an entirely controllable disease is doomed to extinction, at least as a public health menace, when the entire public realizes its large incidence, its devastating quality, and the ease with which its transmission may be prevented. In the meantime, because of its prevalence, affecting as it does at least five per cent of the population, because of the variety and multiplicity of the lesions, and its power of adding to the virulence of any of the other infections, its diagnosis is missed in an increasing number of cases, on account of the too great dependence upon the Wassermann test; or, the diagnosis having been made, we do not recognize that the spirochetal infection seems to be compatible with any other disease to which flesh is heir and works in consonance with such disease to the detriment of the patient. Syphilis predisposes to all infections and degenerative changes, and even to cancer.

In this relation a report by Golob (*New York Medical Journal and Medical Record*, Dec. 20, 1922) of a case of cancer of the rectum with four-plus Wassermann is not without its interest. This patient, fifty-four years old, exhibited the characteristic symptoms of a progressive obstruction placed at or near the rectum, corroborated by examination which revealed an ulcerated, hard, bleeding mass three inches above the sphincter. The laboratory reported a four-plus Wassermann, whereupon the patient was given two intravenous injections of salvarsan, which, the reporter states, made her worse. The marital history suggested syphilis of long standing. The reporter states his belief that the treponema is actively antagonistic to carcinoma, basing this concept upon the progress of the case he records, a progress more rapid after salvarsan injection. He believes that the salvarsan discouraged, if it did not destroy, the local treponemata, which up to this period were actively engaged in holding the cancer in check.

This ingenious concept is not in accord with the commonly accepted belief to the effect that by its inhibiting influence upon local circulation and consequent devitalizing effect upon tissues the treponema renders vulnerable to all infections, or degenerations, the organ which it attacks.

It has long been recognized that syphilitic infection predisposes to consumption; also, that syphilitic lesions of the lungs in symptomatology so closely simulate consumption that the differential diagnosis cannot be made. This is so essentially true that, given a case of fairly active and progressive degeneration of the lungs in the persistent absence of tubercle bacilli in the expectoration, it is in many cases the custom to try out one thorough course of specific treatment. Occasionally, the results are almost miraculous. Usually, if

there be no specific infection, the patient is made worse. At times, where there is mixed infection, both syphilis and tuberculosis involving the lungs, there will be a distinct betterment. In such cases the dosage must be carefully guarded. In treating syphilis it must be borne in mind that a dosage so heavy as to lower vital resistance, as shown grossly by a lessened intellectual energy and initiative and a loss of weight, is to defeat the object of treatment.

There was at one time a proprietary medicine advertised as a blood purifier that was largely popular. It contained antisyphilitic medicine in small doses and benefited many whose underlying cause for ill health had not been recognized by their doctors, and many others who had not been to their doctors but who were syphilitic without knowing it. The dosage of the specifics was too small to seriously injure those who did not need such medicine. Not until a truer concept of the wide extent of syphilis came to the medical profession, followed by a search for this infection as the underlying cause of impaired health, and a treatment more efficiently directed against it, did this preparation lose in large commercial value.

There is no condition of impaired or altered function in which syphilis should not be suspected as either the underlying or directly contributing factor. It must be recognized that a negative laboratory test of blood is not conclusive, and that a positive laboratory test by no means proves the lesion under consideration is syphilitic; that specific treatment, whether for an assured or doubtful syphilis, recent or old, must be so conducted as not to impair the patient's general health.

Progress in Therapeutics

Medical Therapeutics

Rheumatoid Arthritis and its Practical Treatment.

Dobson, in the *West London Medical Journal* for October, 1922, states that in his discussion of treatment he confines himself to those methods which can be carried out either at home or in a hospital by the medical man in charge of the patient, and will commence with the treatment of those conditions which are common to all types of the disease.

Before this can be carried out, a careful search must be made for some local focus of infection or toxic absorption, and if found this must be removed or alleviated before we can hope to get any appreciable improvement in the general condition. A thorough examination of the mouth and nasopharynx should be undertaken for such sources of infection as diseased teeth and gums, infected tonsils, discharging nasal sinuses, and the like.

While on this subject he calls attention to the fashion or craze which now exists for the wholesale extraction of teeth whenever there is the slightest trace of pyorrhea or sepsis of the gums. He feels sure that in a large number of cases this is utterly wrong, and that it is time for some of us to make a stand against the practice. At present, the usual experience is that a patient visits a medical man, suffering, we will say, from some form of rheumatism. The patient's mouth is examined, some evidences of pyorrhea are discovered, or perhaps a little pus may be squeezed from the gums, and without further examination the teeth are condemned, and the patient is told that he cannot possibly get better until they are all extracted.

This procedure condemns the patient for the rest of his life to the use of an artificial denture, which in many cases is a constant source of misery and trouble, and, in addition, his symptoms are not alleviated in any way. He has more than once seen patients suffering from rheumatoid arthritis who have had all their teeth extracted without any relief, and who on examination showed pus running down the back of the pharynx from diseased sinuses.

The point which he wishes to emphasize is, that in his experience pyorrhea is often a secondary result, and not a primary cause of general septic infection.

Time and again, when treating cases of rheumatoid arthritis in which pyorrhea has been present, he has seen it disappear completely when the patient has undergone a course of intestinal lavage for coexistent chronic constipation, due attention, of course, being paid simultaneously to local antiseptic treatment of the mouth.

In examining the tonsils one should not be content with an ocular inspection, but they should be carefully squeezed with forceps, when frequently it will be found that the crypts are full of a semipurulent, foul-smelling discharge. Therefore, if after inspection the tonsils are found to be diseased, if there are diseased stumps of teeth, faulty bridges or crowns, and other obvious foci of possible infection in the nasopharynx, these should be dealt with in the usual manner.

Failing these, a general examination of the whole body should be made, including a careful search for rectal and uterine ulcerations, and no case will be complete until a bacteriological examination of the urine and feces, and in some cases of the blood, has been carried out. If, from any of these sources, evidence of septic infection can be obtained, an autogenous vaccine should be prepared, and the patient subjected to a systematic course of injections.

In 1912, Middleton, of Bournemouth, read a paper before the West London Medico-Chirurgical Society on the treatment of rheumatoid arthritis by means of prolonged blistering of the spine, and gave a series of some fifty cases, many of them of the most severe type, which had been cured or greatly alleviated by this means. He was so impressed with his results that Dobson followed his advice, with the greatest success, and he has no hesitation in stating that if this method be carefully followed out, very great improvement, if not cure, will result in a large number of cases. His method is to place a blister, some 2 to 3 inches square, over the seventh and eighth cervical and tenth to twelfth dorsal vertebræ, and to keep these blisters open for the space of at least three weeks by means of savin ointment, if necessary repeating the treatment a second or even a third time at intervals of about six months. As a substitute for this the thermocautery may be used, or acupuncture by means of an instrument giving a number of small punctures in a given area, these punctures being subsequently dressed and made to discharge serum by some irritating ointment. The use of the blister is, however, in his experience by far the best method.

This may seem to be a severe method of treatment, but if it be pointed out to the patient that rheumatoid arthritis is a progressive, painful and crippling disease, he or she will generally give consent, and if properly nursed, it is not nearly so painful as it would appear. Every case of this type under his care at the Freemasons' Hospital now undergoes this treatment as a routine, and he has yet to see a case which has not been very greatly benefited or indeed cured as a result.

Next in importance is the constipation and stasis from which practically all these patients suffer, and no treatment will be successful until steps are taken for its eradication. Many of them, especially those of advanced middle age, suffer from enteroptosis, and measures must be taken to give the abdomen support, by means, in men, of a properly fitting belt, or in women of a supporting corset fitted with an abdominal plate or pad similar to a Curtis. The constipation should be treated at first by a

series of high colon wash-outs given daily. The method he pursues is to give half an ounce of liquid paraffin before or after breakfast; at 10 A.M. half to 1 cc of pituitrin injected intramuscularly, and twenty minutes afterwards a Plombière douche or colon wash-out is given from a douche can, containing 3 to 5 pints of boiled water with a teaspoonful of bicarbonate of soda to each pint, and one ounce of turpentine well stirred into the whole. The can should not be elevated more than 18 inches from the couch; the patient lies on his back while the first half of the douche is administered, and then turns on his right side for the second half; the fluid is delivered through a No. 12 soft catheter, so that the whole injection takes some twenty minutes. This is retained for ten minutes and then evacuated. Patients soon learn to do this for themselves. Each evening another half an ounce of paraffin, or a mild aperient pill such as Parke, Davis & Co.'s alophen pill, is given. Under this treatment the general condition of the patient speedily improves, large motions are passed, the earthy complexion disappears, and the appetite returns.

Having searched for the causative microorganism, and provided, if possible, a suitable autogenous vaccine, having assisted this vaccine by the application of blisters to the spine, and having instituted a course of treatment for the relief of intestinal stasis, Dobson now passes on to the use of drugs.

Salicylates he thinks are of little or no use in the treatment of rheumatoid arthritis. He knows of no drug which has a specific action on the disease, and therefore we have to make use of such drugs as will be useful in treating symptoms as they arise. Pain will usually be the principal symptom calling for relief, and he finds that a cachet containing 5 grains each of phenacetine or pyramidon, aspirin and quinine salicylate every four hours is most useful for this purpose. A combination of quinine and guaiacum may also be tried, more especially when there is severe muscular pain at bedtime. Mixtures of alkalies with colchicum and hyoscyamus are of service when there is fever accompanied by pain and high-colored urine, but in severe cases it will generally be necessary to give a full dose of Dover's powder, or a hypodermic injection of morphine at bedtime. An emulsion of sulphur in olive oil injected intramuscularly from time to time is said to be very beneficial when the joints are swollen and painful. It gives rise to a good deal of reaction, but this soon passes off, and is followed by considerable improvement. He has not used this method to an extent sufficient enough for him to pronounce any definite opinion.

The Transmission of Syphilis to the Second Generation.

In the *American Journal of Syphilis* for October, 1922, COOKE and JEANS state that it is highly probable that all mothers of syphilitic children are infected, although occasionally mothers of syphilitic infants have negative Wassermann reactions, and more often mothers of older syphilitic children have weakly positive or negative reactions. In all such instances the maternal infection is latent. A strongly positive Wassermann reaction in the mother does not mean that her infant will necessarily be infected, and consequently a syphilitic mother may bear a healthy child. When the mother's Wassermann reaction is positive with the cholesterolized antigen only, the chances are about seven to one that the infant is not syphilitic.

In most instances the father brings the infection into a family, although nearly 40 per cent of the fathers of syphilitic children have negative Wassermann reactions (at the time the children are examined). The male may therefore transmit the disease after his infection has become latent. Transmission to the third generation is possible, but is incapable of proof.

Identical or single ovum twins born to a syphilitic mother are both infected or both escape the disease; double ovum twins, on the other hand, have the same fate as chil-

dren of two successive pregnancies—*i. e.*, either, neither, or both may be infected.

Adequate treatment of the syphilitic mother during pregnancy will result in a non-syphilitic infant if the treatment is instituted before the fetus is infected. Only a relatively small amount of treatment is necessary to accomplish this. Subsequent pregnancies are not protected unless treatment is continued. It is probable that when a mother becomes infected during the pregnancy the fetus is infected also, but the treatment of the mother may be followed by a milder infection in the infant and lessen the danger of a fatal infection *in utero*.

Placentas of syphilitic infants show characteristic diffuse microscopic changes in 27 per cent of cases. When such changes are present the infant later proves syphilitic in every instance.

Syphilitic infants at birth have Wassermann reactions in the following proportion: 37 per cent negative, 18 per cent weakly positive, and 45 per cent strongly positive. After the first few weeks or months all syphilitic infants have strongly positive Wassermann reactions. Syphilitic infants over two months of age fail to show clinical evidence of the disease at one examination in 50 per cent of instances.

Non-syphilitic infants may give weakly positive Wassermann reactions at birth which become negative later, but never give strongly positive reactions at birth or any other time. All mothers of such non-syphilitic infants as give weakly positive Wassermann reactions have themselves reactions of equal or greater intensity than their infants. In these instances the fixing substances are probably transmitted from the mother to the infant without transmitting the infection.

Hutchinson's triad of interstitial keratitis, enamel defects of the upper central incisors, and nerve deafness are rare.

In older children with active manifestations of syphilis the Wassermann reaction is positive in almost 100 per cent. Certain possible exceptions are noted, all of whom had keratitis. A diagnosis of active hereditary syphilis in a child with a negative Wassermann reaction is justifiable only when the clinical evidence of the disease is absolute and unmistakable.

The Internal Secretions in Their Relationship to Mental Disturbance.

In the *American Journal of Psychiatry* for October, 1922, TUCKER states that in thirty-seven cases that were brought for various mental disturbances in whom an endocrine study was attempted, he found that twenty-two of them were pituitary dominant, three were thyroid dominant, three suprarenal dominant, five were ovarian dominant, and in four the polyglandular disturbance was so evenly distributed that no particular gland could be said to dominate. In all except one, more than one gland appeared to be affected.

The mental disturbances of all cases seemed to fall into the well-recognized mental types, and the dominant gland affected did not seem to regulate the type of mental disturbance found. Mixed thyroid symptoms sometimes occurred, as in two cases which had slow pulse rates when one would expect them to have been rapid. In some cases there seemed to be an increased anterior lobe pituitary secretion and decreased posterior lobe secretion. It might also be said that the feeding of appropriate glandular extracts in these cases was decidedly encouraging.

Considering the whole subject of the relation of the glands of internal secretion to mental disturbances, he thinks we are justified in feeling that a very close relationship exists. It appears to be a fact that gross disorder of any of the most important endocrine glands may produce a mental syndrome the type of which coincides with known mental disorders, and that practically all endocrine disorders are polyglandular, the disturbance of one gland, however, frequently being predominant. The next step in investigation should be, it would seem, to study more thoroughly from

an endocrine standpoint the usual types of insanity. This has thus far been attempted only in a scattered and bizarre manner, and it is to this problem he would suggest that we address ourselves in the hope that, at least, we may be able to partially solve the mystery of the etiology of paranoia, dementia præcox, and manic-depressive insanity.

Chronic Intestinal Indigestion During the Second and Third Years of Childhood.

HILL, in the *Boston Medical and Surgical Journal* of November 30, 1922, states that there is at present a tendency to feed too varied a diet at too early an age, such as large amounts of green vegetables, potato, and eggs, to infants even before they have reached the end of the first year. In many cases this does no harm, but in others it causes severe digestive disturbances, which may take months to repair.

His own practice is to begin semisolid food, such as oatmeal, farina, or zwieback soaked in milk, at the eighth or ninth month. At this time chicken or lamb broth with rice may also be added, and a small amount of apple sauce or prune sauce if the baby is constipated.

At the end of the first year the baby should be taking daily about a quart of whole milk, some starchy food such as cereal, zwieback, rice or dry bread twice a day, a little soup or possibly beef juice, orange juice, apple sauce or prune sauce. This is a quite sufficient diet, and the average normal baby does well on it. At about the fourteenth or fifteenth month strained vegetables such as spinach, carrots or tender string-beans may be added, and potato may also be added about this time.

Potato starch is for some reason more likely to cause digestive disturbance than almost any other kind of starch, and although we have all seen babies of a year old, or even younger, thrive while taking large amounts of it, in general it is best withheld until the fourteenth or fifteenth month. Potato and green vegetables should not be given on the same day at this time; it is usually best to give potato one day, a green vegetable and rice the next day. It is well not to give too much of the same sort of starch on the same day; if oatmeal is taken for breakfast it is best to use macaroni, zwieback or bread and butter for supper.

Soft-boiled or coddled eggs may be begun at sixteen months, a couple of spoonfuls at a time, and gradually increased until a whole egg is taken every day. Eggs do not agree with all babies, and if such is found to be the case in any individual instance, it is best to omit them temporarily from the diet, and to start them again in another month or two. Some babies who cannot take the whole egg can take the yolk, hard-boiled and grated in with the vegetable or potato. Meat is usually begun in about two years, the best meat to use being chicken, lamb chop, or crisp bacon. It is not common for meat to cause digestive disturbance, and he has a suspicion that it might probably be begun considerably earlier in small amounts, without doing any harm. No raw fruit should be given to children under four or five years of age; in some parts of the country—for example, North Carolina—all milk fed to babies and small children should be boiled or pasteurized at all times of the year, and it should not be Jersey or Guernsey milk. The child should not be fed between meals, and he should be made to eat every new article of food as it is offered, unless it actually seems to disagree with him.

It is just as easy to feed children correctly as incorrectly, and it will be found that the vast majority of children do well on the general plan outlined above. He has spoken somewhat dogmatically in order to be clear and to save time, and realizes that very likely some pediatrists would criticize the above plan of diet.

So much for a brief résumé of the principles of feeding a normal child; let us now consider chronic intestinal indigestion.

For practical purposes this may be divided into two groups: the mild cases,

and the severe ones. In the mild cases there is a certain amount of indigestion, due almost always to overfeeding with fat or starch, but there is no far-reaching general nutritional damage, and the indigestion is not in most cases hard to correct. In the severe cases there is present a marked and long-standing indigestion, which has continued so long that severe damage to nutrition has been brought about, which may take years to correct.

Under these circumstances we have four foodstuffs to consider—fat, sugar, starch, and protein.

Protein is very well tolerated, and a diet very high in protein is always advisable. A moderate amount of sugar, such as would be contained in milk, is usually tolerated, and often very much more than this. Starch is hardly ever tolerated except in small amounts, and the very severe cases usually do better without any starch. In severe cases we have before us, then, the problem of nourishing a child on sugar and protein, with as high caloric a diet as possible, as these children need more calories than the normal child, before they will gain.

It is not easy to withdraw all starch from the diet, as the normal child depends so much on this foodstuff to furnish him calories.

Milk forms the basis of the diet, and lactic acid milk is usually better tolerated than sweet milk. This should be fat-free, and if the child will not take lactic acid milk, boiled fat-free sweet milk may be used.

Whereas one would not feed a normal child over a quart of milk a day at the most, it is desirable to feed these children as much milk as possible, so that certainly as much as 48 ounces daily can be used, and possibly more.

If the child has a good sugar tolerance—and very many of these children have—sugar is advantageously added to the milk, and is a very valuable foodstuff, as it has a high caloric value, and is easily assimilable. Sugar is best given in the form of corn syrup, as originally advocated by Marriott. Corn syrup consists of glucose, maltose, and sucrose, and is a very easily assimilable mixture of carbohydrates. One ounce by volume contains 33 grammes of carbohydrate, and furnishes 136 calories. He gave one child nearly five ounces daily, thus furnishing about 600 calories by means of the syrup alone. Usually it is best to start with about two ounces a day, divided between the different feedings, and then to work up, if possible.

Meat is the next article of food upon which we have to depend, and although it does not furnish so many calories as does the syrup, it is very satisfying, and adds bulk to the diet.

A child of three years often will take and digest as much as six rounded tablespoonfuls of meat a day, and, contrary to the usual idea that meat is difficult of digestion, these children are able in most cases to digest it better than anything else. The white meat of chicken is the best meat to use, as it contains less fat than most other meat. Two other articles of food which are of value are cottage cheese and muffins made from casein flour.

Cottage cheese is familiar to most housewives, and is made by adding a teaspoonful of essence of pepsin to a pint of warm milk. This is allowed to stand until it has "set," when the curd is broken up, and separated from the whey by straining through cheese-cloth. It is then lightly salted and broken into fine granular crumbs. It consists almost entirely of casein, and a pint of milk will furnish about three rounded tablespoonfuls of this cheese, which contain 60 calories. After a while a child learns to like this, and will usually take 4 or 5 tablespoonfuls daily without trouble.

Syphilis of the Nervous System.

HAZEN, in the *American Journal of Syphilis* for October, 1922, states that mercury is believed by many authors to be of considerable value in the treatment of cerebrospinal syphilis when combined with arsphenamine. Before the introduction of arsphenamine he recalls having seen several very striking cases in which the intramuscu-

lar injection of mercury produced marked beneficial effects. At the present time, however, the great tendency upon the part of syphilologists is to depend more and more upon arsphenamine. The administration of mercury in neurosyphilis differs in no respect from its use in other forms of the disease. This will be discussed at a later date.

If one should happen to read a text-book upon neurology that was written some twenty years ago he would find that the use of iodides in syphilis of the nervous system was extolled; he would also find much discussion as to the dosage, some authorities recommending the usual ten to fifteen grains, three times a day; and others stating that enormous doses, often one ounce and more a day, are necessary. At the present time the iodides are but little used. Stokes believes that they are of considerable value in the early cases of meningitis. It is interesting to note that in some late work from his clinic it has been proved that the iodides should be given before meals rather than after meals, as has always been the custom.

Arsphenamine, when given by the intravenous route, can but rarely be demonstrated in the cerebrospinal fluid. Nevertheless even when thus administered it frequently exerts a most beneficial action upon almost any type of nervous syphilis with the exception of general paresis. When we consider that paresis is primarily a parenchymatous disease, and that many of the blood-vessels of the cerebrum are involved, this failure has always seemed to him to be striking and rather difficult of explanation. Practically all conservative syphilologists are agreed that in the ordinary cases of cerebrospinal syphilis a thorough course of intravenous medication should first be given. Of course, a spinal fluid examination should be performed before such treatment is begun, as otherwise the physician will be working in the dark and it will be impossible for him to say whether or not he is improving the condition. In the ordinary case it is usual to give a course of twelve intravenous arsphenamine injections at intervals of from five to seven days. Then the patient is put upon mercury, and at the end of two weeks a spinal fluid examination is again made. If this is found improved, arsphenamine is again administered. The intensity of the second course necessarily depends upon the amount of improvement that has occurred during the first course.

If a patient is first seen with a fulminating nervous syphilis, if the laboratory findings do not improve under intravenous administration, if the clinical symptoms do not improve, or if it is impossible to give intravenous treatments, the intraspinal route must be selected.

The administration of arsphenamine intravenously is essentially the same in neurosyphilis as it is in any other form of syphilis. The intervals between doses vary considerably in the hands of different men. In severe cases he usually employs from three- to five-day intervals, and in the mild cases, or for a second and third course, an interval of a week will be satisfactory. It is probable that arsphenamine is preferable to neoarsphenamine inasmuch as it is apparently a more constant product. There is no reason why a patient suffering from nervous lues should not have from forty to fifty injections in the course of the year.

The usual type of the intraspinal treatment is the Swift-Ellis. There are various modifications of technique, but the one that he employs is the same as that of Fordyce. The technique is as follows:

First, the usual intravenous injection of arsphenamine is given, employing 0.4 gramme per 150 pounds of body weight. Second, exactly thirty minutes later 50 cc of blood is withdrawn from the vein. This is placed on ice for three or four hours. Third, the blood is centrifuged and the clear serum is pipetted off under aseptic precautions. Fourth, this serum is inactivated by incubating at 56° C. for one hour, or by being placed in a water-bath for the same time at the same temperature. The object

of this is to render inactive any bacteria that may be present in the blood stream. Fifth, a spinal puncture is done in the usual way. As soon as the stilet is withdrawn from the needle, the percolator is attached to the needle by a piece of rubber tubing about six inches in length. The percolator is held below the level of the puncture and the serum allowed to flow into this. Six cc is poured into a test tube so that the usual tests may be done upon it. Ten to twenty cc of spinal fluid will usually collect in the tube. About as much of the inactivated blood serum as there is of the spinal fluid should now be poured into the percolator and the two fluids allowed to mix. The percolator should now be raised five to six inches above the level of the needle and the fluid allowed to flow back by gravity until the original amount withdrawn is replaced. The needle is then withdrawn.

It is probable that there is no great advantage to be derived from reënforcing the blood serum before it is reinjected. By reënforcing is meant the addition of 3 to 5 mg. of neoarsphenamine, or arsphenamine, before use. Fordyce has discontinued its use, but Stokes advocates it.

Intraspinal treatments are usually given at intervals of two weeks. In mild cases of cerebrospinal syphilis three to four such treatments may accomplish the desired result, but in the severe cases from ten to twenty-five may be necessary. If there is no improvement after fifteen injections this method of attack should be given up.

The indications for intraspinal therapy have already been discussed, but one point must be emphasized: *intraspinal therapy should never be used unless the examination of the spinal fluid is positive.*

The Role of Poisonous Amines.

In an editorial on this subject, the *Indian Medical Gazette* for November, 1922, states that during the past six months five reports have been published which emphasize the importance of poisonous amines in inducing disease and death; and it may be well to attempt a review of what promises to be a new chapter in medicine. Amines are the end product of proteid digestion or disintregration: the sequence of events being the conversion of proteids first to proteoses, then to polypeptides, thence to amino-acids, and finally to freely soluble and absorbable amines. Amines may either exist preformed in the diet, as in the case with the well-known and essential vitamines, or they may be produced by the action of bacteria or fungi, or even by sterile tissue autolysis either in the gut or in the tissues. Once absorbed into the blood stream, amines circulate either as amine base or as acid salts. To some extent they are dealt with by the liver and there destroyed; partly, however, they are excreted by the kidneys.

The first of the five reports referred to is the remarkable paper by Sir Frederick Mott and Dr. T. Uno reviewed in the same journal for September. These investigators show that surgical shock is not merely, as has long been taught, a matter of the patient "bleeding to death into his own veins." The essential factor appears to be histamine action. Shock is even more marked in cases with extensive muscular injuries, tissue lysis, and absorption of histamines, than in cases with much hemorrhage but little tissue injury. Shock is due to the condition described by Cannon as "exæmia." Blood stasis occurs in the capillaries generally; plasma exudes through the capillary walls into the tissues; the hemoglobin index and red blood cell count rise. Chromatolysis occurs in the cells of the autonomic nuclei of the medulla and in the bulbospinal motor nuclei. Microbial infection may have little or nothing to do with wound shock; the picture presented is that of histamine action.

The second and third reports are those recently published in this journal by Major H. W. Acton, I.M.S. Here it has been shown that lathyrism, a form of spastic paraplegia common in the Central Provinces of India, is due to absorption of a poisonous amine from certain classes of vetch foodstuffs; the amine being the product of en-

zyme action in the seed during months of high atmospheric humidity and temperature on the proteids of the *dâl*. They publish a further experimental contribution to this problem by Majors Acton and Chopra in the present number. Secondly, the epidemic dropsy of Bengal is also an amine disease; the amine being the product of fungous action on decorticated *balami* rice under similar conditions. In lathyrism the amine produces vascular stasis and the lesion results from thrombosis from arterial spasm of the small blood-vessels supplying the antero and anterolateral spinal tracts below the second lumbar root. In epidemic dropsy the amine appears to cause increased capillary permeability and a raising of the blood-pressure, factors which cause the painful edema of the disease.

The fourth and fifth reports have still to be published in detail, but a summary on one of them is given below in the résumé of the interesting paper by Major H. W. Acton, I.M.S., and Major R. N. Chopra, I.M.S., on the pathology of cholera. As shown many years ago by Dr. C. J. Martin, the diphtheria bacillus produces its best yield of toxin when grown on a sugar-free broth well supplied with oxygen. In bacillary dysentery it has long been recognized that bacilli of the Shiga type are far more toxic than are bacilli of the Flexner type. On ordinary broth neither bacillus produces any appreciable amount of toxin. But if the Shiga bacillus be grown on a broth rich in amino-acids—*e.g.*, in a broth containing decomposed veal—it yields an abundant supply of dysentery toxin. The Flexner bacillus yields very little. This Shiga toxin is of the chemical nature of an amine. Tested on experimental animals it causes tonic spasm of the uterus, and increase in the amplitude of the contractions of isolated rabbit intestine with irregularity also. The clinical symptoms of Shiga dysentery can be produced in animals with this amine. Similarly in cholera, the cholera vibrio produces an amine, in the same way as it attacks the amino-acid tryptophane to form indol; and the symptoms of cholera can be reproduced in experimental animals with this isolated amine.

In brief, in both Shiga dysentery and cholera everything appears to depend upon the substrate upon which the bacteria act. Hitherto we have been accustomed to classify bacteria by their morphological characters. In future, more attention should be paid to what bacteria do than to what they are. This has long been recognized by agricultural and economic bacteriologists, but its importance has not been sufficiently realized in medicine. Whether an attack of Shiga dysentery or an attack of cholera is mild or is very severe and even fatal may all depend upon the characters of the substrate—*i. e.*, the intestinal contents. If abundance of amino-acids is present, *i. e.*, abundance of the products of proteid digestion, toxic amines will be produced in abundance and the disease will be very severe. If the diet has been of such character as to leave but little proteid residues in the intestine the bacteria will produce but little toxic amines, and the disease be of mild character.

Silvol or Neosilvol for the Rapid Cure of Cystitis in Children.

Hirst, in the *New York Medical Journal and Medical Record* of March 7, 1923, states that the proper treatment is astonishingly simple and easy and in his experience invariably rapidly effective. It consists in the injection into the bladder of 5 cc of a ten-per-cent solution of silvol or neosilvol, to be retained if possible. The retention of the solution seems to be of secondary importance, however. In very young children it will promptly be evacuated, but enough seems to remain in the vesical base to secure the desired result. It is very unwise to use more than 5 cc at a time, as a larger quantity is sure to be expelled, and any chance of retaining it will be lost. Silvol makes a solution strongly resembling argyrol, and has the same happy faculty of staining everything it touches a deep brown. Neosilvol makes a turbid yellowish solution, is equally effective, and does not

stain at all. For this reason he employs the neosilvol solution routinely, although it does not keep as well as the silvol and should, therefore, be prepared in small quantities. It is undeniably better, though somewhat troublesome, to prepare the solution fresh for each treatment, although for a week or two the neosilvol stock solution shows no sign of deterioration. These silvol salts are so far superior in their results to any other he has used that he now employs them routinely for all bladder or kidney pelvis irrigations.

The child is arranged in the dorsal lithotomy position, and its knees held apart by an assistant or nurse.

Anesthesia will occasionally be required, because of the child's unruliness, and not because of any pain caused by the manipulations. Light ether or chloroform anesthesia is all that is needed, for a few seconds only.

A small soft-rubber catheter is boiled and inserted into the bladder, after proper preliminary sponging and cleansing of the vulva.

Urine in the bladder is allowed to flow out.

No irrigation of the bladder is required, and it is a waste of time to do it.

Through the catheter is injected, by a piston syringe, 5 cc of ten-per-cent silvol or neosilvol solution, and the catheter quickly withdrawn.

In most cases the solution will be retained from fifteen minutes to several hours. The younger the child the more likely the shorter retention. Even if it is passed at once, sufficient residue will remain to do the work. It is not necessary immediately to repeat the injection, as it will only be evacuated again, more promptly than before.

In most cases the results are immediate. The tenesmus promptly ceases, the frequency of urination diminishes or disappears, and the child is immediately comfortable and quiet. If the symptoms recur or the urine does not promptly clear, the injection can be repeated. He has found this rarely necessary, however, in the acute cases. In older girls of six or seven, who have had cystitis of long standing, with occasional exacerbation, repeated injections are often necessary, but in the acute cases, especially if no time has been wasted on medicinal or mistaken treatment, the results are prompt and satisfactory.

The age of the child has no bearing whatever on the practicability of the injections. The urethra of a female child is surprisingly distensible, as is well known, and no difficulty will be encountered. He has carried it out in an infant one month old, without trouble. In babies, of course, the ability to retain the solution is a matter of luck, and its prompt evacuation need not cause any concern.

Physiological Effects of Light.

The *British Medical Journal* of November 25, 1922, in referring to a recent meeting of the Section of Therapeutics and Pharmacology of the Royal Society of Medicine, states that Bayliss, in introducing this subject, said that every one was familiar with the fundamental law that light did not produce any effect unless it was absorbed by the medium through which it passed. It appeared in all the biological reactions so far investigated that energy from the light was absorbed, in some cases largely (as in the green chlorophyll of plants) and in other cases much less obviously. There were cases in which the light did not appear to impart much energy, and yet it might suffice to give the original stimulus for the starting of a process. In speaking of effects of the light he thought it more convenient, though possibly less accurate, to refer to them as photo-chemical effects (resulting in the production of some active chemical substance), rather than photo-electrical effects (in which the process was supposed to depend upon the emission of electrons). It was perfectly clear, especially from the observations on rickets and tubercle, that light acting on the skin produced something which must pass into the blood and be carried through the whole body.

An important question which arose in this connection was that of pigment. Was the function of pigment to absorb a particular wave-length of light? Did it act as a sensitizer? Hess of New York has shown that black rats were much less easily cured of rickets by light than white rats. If it were true that it was vitamin A which was concerned in the cure of rickets, it seemed pretty obvious that it ought to be possible to replace vitamin A by light. This replacement could take place to a partial extent. An animal on insufficient vitamin A could, by the action of light, grow as well as if it had a sufficiency of vitamin, but the converse of this did not hold good; by giving sufficient vitamin A rickets could not be cured in a dog kept without light. Another possible aspect of the light effect on tissues and structures must not be forgotten—namely, that the light rays passing through the skin became converted into heat rays in the blood.

Leonard Hill spoke chiefly on the question of pigmentation. The evaporative power of the skin was conditioned largely by pigment. It was the pigment layer which made the skin of the negro better able to lose heat than the skin of the white man. The sweat glands also appeared to be more active in the black skin. He related some experiments on the effect of pigmentation under sun heat, which showed that this took place better on wet than on dry skin, probably owing to the deeper penetration of the ultra-violet rays; it occurred less well in skin exposed to currents of wind, and very imperfectly in skin covered by glass. From observations on children it appeared that it was the cooling power, not the sun, which had the greatest effect on the metabolism, though the sun had a profound effect also. The speaker had confirmed Hess in every respect as to the effect of light upon rickets. By means of light, rickety changes in the bone could be stopped altogether, without very much improvement in growth, and the animals exposed to light were also healthier looking and with a cleaner skin. Phosphorus in the blood, which was very low in the rickety subject, was increased a little—not very much—by exposure to light. A fact which might appear puzzling was that children in some tropical or subtropical countries got rickets. This was probably explained by the effect of excessive temperatures. Rats living in moist heat on a normal diet showed signs of rickets and a tendency to die of pneumonia.

Gauvain gave illustrations of the effect of light treatment in cases of surgical tuberculosis at the Alton Cripples' Home and at Hayling Island. One difficulty he had experienced was due to the non-pigmentation of certain children. Children with a tendency to freckle and not to pigment failed to do well under light treatment, and could not indeed stand long exposures to the sun. The absence of pigmenting power was of prognostic significance. Frequently there was latent tuberculosis in such children, and a new lesion might be expected to develop or an old one to recur. When this relapse did take place the children often acquired pigmenting power and thus became more amenable to treatment. Sun treatment should not be given to children without proper arrangements to avoid blistering, and the children, by means of occupations and amusements, should have their attention diverted from the fact that they were receiving a course of treatment. The strong exposure to the light obtainable by the seashore at Hayling Island was not suitable for very young or very weakly children. It should be reserved for the stronger or those with good pigmenting power.

Martin summarized the results of certain observations by the workers at the Kinderklinik in Vienna, which showed that in winter, among children on ordinary diet, not arranged to include a certain amount of the required vitamin, a considerable proportion developed rickets, whereas in summer the diet did not signify, for neither the children who had no cod-liver oil nor those who had it tended to get rickets. He thought that the discovery of the power of light in preventing and curing rickets was one of the most important of recent years.

Rectal Complications of Pregnancy and the Puerperium.

In the *New York State Journal of Medicine* for November, 1922, McKENNEY states that of all the complications, hemorrhoids, as is well known, are the first in importance, and practically all of the obstetrical text-books consulted emphasize the suffering resulting from them. Their treatment naturally falls under three headings: First, during pregnancy; second, during labor; third, during the puerperium.

The slight discomfort of hemorrhoids that make their appearance during pregnancy, and which may bleed but do not prolapse, is usually relieved by a daily complete evacuation of a non-irritating stool. Where the suffering is severe, it is usually due to an associated fissure, an ulcer, or a thrombotic condition in the internal or external hemorrhoidal area, and relief is obtained by treating the cause.

When hemorrhoids prolapse after defecation, return unaided, or have to be replaced, they are a menace to the pregnant woman because of their liability to acute exacerbation, and radical operation, as early in pregnancy as possible, should be insisted upon.

If prolapse and strangulation exist for any length of time, thrombosis, rupture of veins, and extravasation of blood into the tissues occur, followed by infection and sloughing. The thrombosis may extend for several inches into the veins of the rectum. The suffering is intense and continuous, recovery is slow, and subcutaneous fistulæ are apt to result. In this condition any attempt to replace them is dangerous, but under local anesthesia the clot in the largest hemorrhoidal masses should be evacuated with the least possible manipulation of the veins above, lest an infected embolus be dislodged. This should be followed by a hot moist antiseptic dressing.

If internal hemorrhoids have prolapsed and surgical intervention is refused, then the problem is what to do with them. First of all, an effort should be made to replace them. The local application of adrenalin and glycerin, very hot fomentations, or a hot sitz bath for a short time, often relieves the congestion and relaxes the external sphincter ani muscle so that this can be accomplished easily, by means of gentle but firm continuous pressure, with the patient in the knee-chest position. Sometimes, however, the sphincter can be relaxed only under local anesthesia.

When hemorrhoids are replaced the difficulty is to keep them inside the rectum. Often this can be done by means of a gauze pad T-bandage or adhesive dressing. Much can also be done to keep them there by the use of enemata of cool water or oil, the recumbent position, the application of tannic acid ointment or hazeline cream, the avoidance of cathartics, and the use of the bed-pan. Multiple small punctures are sometimes beneficial, but their use should be a last resort. For the sloughing hemorrhoids powdered charcoal makes an excellent but messy dressing.

If hemorrhoids are seen before thrombosis occurs and can be replaced and kept there, the injection of a few drops of a 5- to 10-per-cent urea and quinine hydrochloride solution into the center of each internal hemorrhoidal mass, repeated as necessary at intervals of ten to fourteen days, as recommended by Terrell, will in many instances effect a painless cure.

Zobel remarks: "It is remarkable how very large protruding hemorrhoids disappear after confinement, only to recur with subsequent pregnancy, so why interfere under such conditions?" He answers his own question when he states that they "recur with subsequent pregnancy," and the dread of this recurrence makes many a pregnant woman miserable.

During labor any attempt at replacing prolapsing hemorrhoids will probably fail, and, should one be successful, they will not remain in their natural habitat. If painful, ⅓ to ½ per cent of urea and quinine hydrochloride injected will carry the patient through labor comfortably. The responsibility of curing the hemorrhoids of labor is thus rightly shifted to the

puerperium, during which time many of the factors causing the hemorrhoids having been removed, operation can be done of election. The best time is some weeks after delivery, at which time any necessary repair of the anorectovaginal septum can be made.

Another very annoying complication of pregnancy is the thrombotic external hemorrhoid. It is a small, hard, rounded tumor, appearing suddenly at the anal orifice, and is exceedingly painful. Its treatment is simple, consisting of incision and evacuation of the blood-clot under local anesthesia.

A fissure or ulcer in ano is one of the most distressing rectal conditions complicating pregnancy, and, without a search for the real cause, pressure of the pregnant uterus is often blamed for the pain in the rectum, the backache and urinary disturbances produced by it. If the fissure is acute, developing during pregnancy, it can usually be cured by local treatment. First: regulate defecation as advised when dealing with constipation; and, for the pain, apply hot fomentations of water or a saturated solution of magnesium sulphate, or apply 8-per-cent chloretone ointment or a prescription used in St. Mark's Hospital, London:

> Subnitrate of bismuth, 120 grains;
> Cocaine hydrochloride, 8 grains;
> Vaselin, 1 ounce.

For their curative effect one can use locally 25-per-cent argyrol, pure ichthyol, or an application of a 50-per-cent silver nitrate solution. As the latter is very painful, before making the application it is humane to use local anesthesia below the fissure.

If the medical treatment outlined above is not effectual in a week or two, it probably will not be, nor will it be if the fissure has thickened indurated edges, a polyp at its upper extremity, or a fistula leading from it. Medication failing, the best treatment during pregnancy or the puerperium is incision or excision under local anesthesia (preferably urea and quinine). An infected painful lesion is certainly more nerve-racking and dangerous to the patient than a much less painful clean one.

During labor, where the patient is suffering from a fissure, immediate relief can be given by injecting the base of the lesion with ½-per-cent urea and quinine solution.

It happens sometimes that acute fissures during pregnancy are cured by the stretching the perineal region undergoes during delivery and the involution which follows. On the other hand, due to the stretching, fissures often appear after labor where none existed before, and this is especially true where there is syphilis, a colitis, or irritation resulting from induced bowel movements.

Vein Puncture and Intravenous Medication in Infants.

WATERS, in the *Boston Medical and Surgical Journal* of November 23, 1922, states that in the great majority of adults the median cephalic or basilic veins, either right or left, even if not seen, can be palpated and punctured by the experienced operator. And in those cases in which, on account of extreme adiposity or small veins, these vessels cannot be entered, it is almost always possible to find a suitable one at the wrist or on the dorsum of the hand. Occasionally the veins of the ankle or foot may be punctured where no others appear. In looking back over past years, working in a hospital of over five hundred beds, where he has had supervision of routine Wassermanns on all adults and of the intravenous administration of arsphenamine and other intravenous medication by the thousand, he finds that the last time skin incision was found necessary was over eight years ago.

If, however, this procedure is usually relatively easy in the adult, the reverse is equally true of the infant. Under such circumstances the arm veins are small and are often neither visible nor palpable. Examination of blood, either for culture or for

Wassermann, is equally important to that in the adult, while intravenous medication often makes all the difference between future health and a handicapped body or even life itself. Some other route must be found. Following work abroad and early work in this country, the posterior angle of the anterior fontanelle was used as a guide to enter the superior longitudinal sinus. Here is a vessel relatively fixed, closely situated to the surface and of sufficient size to be readily found. Waters does not give the details of the technique, as that has often been described, but he does emphasize the great need of absolute asepsis. He has followed this route in about four hundred infants when obtaining blood for the Wassermann test.

There have been very few cases in which he was unsuccessful in his endeavor, and in no instance has any injury, temporary or permanent, been noted. Following this simple puncture he began the cautious introduction of arsphenamine and neoarsphenamine by the same route. This was done in some sixty instances equally without any demonstrable injury of any kind.

In the performance of the operation, one is working in close proximity to very important and vital parts, where any minor slip in the technique may be most serious. An unexpected movement of the infant's head might result in a tear of the vessel wall, with the resultant intracranial hemorrhage. Any error in asepsis might be followed by localized or general infection. And in medication any small perforation of the opposite wall of the vessel might result in the escape of arsphenamine, or whatever is being used, into the subdural space, with most disastrous results. The method is, of necessity, possible only to those particularly skilled in its application, and not practical for general adoption.

Even under such conditions each operation was begun with trepidation and finished with distinct relief when no unfavorable indication appeared.

In this uncertainty he eagerly looked for suggestions, and when the anterior and external jugular veins were brought to his attention he was only too glad to try them.

The results of the trial have been in every way so satisfactory that he now only very exceptionally has recourse to the sinus route. The technique is simple: The child is placed upon the table or bed, upon its back. A roll of cloth, often a roll of surgical cotton or something similar, is so placed under the shoulders as to allow the head to be well directed backward. The head is then turned to one side or the other, dependent upon which jugular is selected. The operator stands at the head of the patient. This position usually exposes the vein, which can be seen just beneath the skin. Slight pressure by the nurse, overlying the vessel just above the clavicle, renders the procedure more simple, while the fact that the infant at times cries, on account of the unusual position, often still further facilitates the ease of access.

The thumb of the left hand steadies the vessel by direct downward gentle pressure as the needle (gauge No. 20-No. 22), with the bevel edge upward, is inserted just beyond the thumb. The desired amount of blood having been obtained, the needle is withdrawn, and light pressure immediately arrests any bleeding. A small gauze and adhesive dressing is then applied. This process is usually simple in the extreme.

It is applicable during infancy and early childhood, whereas the sinus route is only available while the fontanelle remains open.

It does not have the possibilities of danger possessed by the sinus route, especially in intravenous medication.

From the psychological standpoint, a small pin-prick in the neck, often below the child's clothing, is much less fear-instilling to the parents than a puncture in the scalp or, as they often report it, "into the brain."

From all standpoints, therefore, when the usual vessels for puncture are unavailable or too small, in the infant and young child, the jugular vein offers a safe route and, when available, should be preferred to that of the sinus, via the anterior fontanelle.

The Acute Antrum.

JOBSON, in the *Lancet* of November 18, 1922, states that the acute and subacute antrum may easily escape notice. Other sinuses may, of course, be involved, but the important thing is to make the diagnosis of sinus infection; the particular sinus can be traced later. If the acute cases were diagnosed early, there would be fewer chronic cases, which do not yield so readily to treatment.

Post-mortem evidence is surprising. Gavin Young examined 30 bodies not specially selected as being likely to have sinus infections. His object was to investigate the relations of the sphenoidal sinus to the optic and vidian nerves. In the course of the investigation he examined the sphenoidal and maxillary sinuses with regard to the presence or absence of pus. His results, communicated to the Scottish Otological and Laryngological Society during the British Medical Association meeting at Glasgow, July, 1922, are almost incredible. No less than 50 per cent of the sphenoids, and 40 per cent of the maxillary sinuses, were found infected. Of course, the number of cases examined is too small to give a conclusive average, but it opens up a wide field for thought and observation. In any investigation of this kind it is essential to know what the individual died of.

Lawson Whale, in an article on sinusitis in influenza, quotes some interesting statistics dealing with this point. Weichselbaum found pus with his own diplococcus in the sinuses of every one of ten cases dead of influenza. Fraenkel examined 60 cases which died of influenza, and found sinusitis in 75 per cent. The sphenoidal was the sinus most frequently affected. The degree of implication varied from serous effusion, hemorrhagic, muco-pus to pus. Prym found the sphenoidal sinus affected in 75 per cent of 92 cases which died of influenza. These statistics force us to the conclusion that sinusitis is a very common complication of the disease known as influenza. In 1894 Gradenigo examined 203 bodies not specially selected. He found sinus suppuration in 45—that is, 22 per cent.

Cases of chronic neuralgia, hemicrania, nephritis without a cause, pyrexia without a cause, chronic nasal catarrh, often with a cough, attacks of bronchopneumonia or a history of frequently catching cold, nasal obstruction, tinnitus, obscure rheumatism or arthritis, optic neuritis, recurring nasal polypi—all these may be secondary to sinus infection. The patient may even complain of nothing more than a feeling of malaise, or that he gets easily tired.

The Reaction of the Blood in Reference to the Regulation of Respiration and the Influence of Anesthesia Thereon.

DOWNS, in the *Canadian Medical Association Journal* for September, 1922, states that it is suggested by Collip that the increased ventilation of the lungs and the production of acid bodies during anesthesia neutralize each other. He believes that the results of the experiments he outlines do not indicate any great alteration in the reaction of the blood. In anesthesia there is not usually a detectable increase in H-ion concentration—that is, acidosis in the sense of being detectable is not present. The respiratory center is depressed by the anesthetic and will tolerate a higher percentage of carbon dioxide than will the normal center, but its response is such under ordinary conditions of anesthesia as to keep the reaction of the blood nearly constant.

The point that is brought out by the foregoing discussion is that the use of carbon dioxide by inhalation during anesthesia is illogical. Carbon dioxide is probably the most effective stimulus to the respiratory center, and during anesthesia, as a result of the action of the anesthetic, the sensitivity of the center is decreased so that it will tolerate a higher tension of carbon dioxide, and thus it might appear sound to administer carbon dioxide for the purpose of stimulating the center; but from the experiments last quoted we learn that the response

of the regulating mechanism is sufficient to maintain the reaction of the blood within physiological limits. Therefore, the administration of carbon dioxide does not appear necessary, and it would seem unwise to run the risk of overbalancing this mechanism with the possibility of causing a fatal acidosis. He refers to a report by Haggard and Henderson of an experiment in which a dog, given hydrochloric acid intravenously in quantity supposed to be insufficient to cause death, dies following the administration of carbon dioxide.

On the other hand the administration of sodium bicarbonate to maintain the power of the organism to combine with acids produced during anesthesia appears a rational procedure. Its use, however, is to be restricted to those cases in which there is positive indication for its employment. Here he is in accord with Reimann and Bloom when they state that the preliminary administration of bicarbonate is to be resorted to only when the carbon dioxide capacity of the plasma is less than 58 cc per 100 cc.

The conclusion he would draw is that in the normal individual under ordinary conditions the organism is capable of caring for the excess of acid bodies produced during anesthesia and that intervention is not called for.

The Failing Heart.

WHITE, in the *Boston Medical and Surgical Journal* of November 23, 1922, states that there are two types of failing hearts—the congestive type and the anginal type.

All the causes of heart disease are likewise responsible for heart failure of the congestive type. The commonest causes are arteriosclerosis, rheumatic fever and allied conditions, chronic hypertension, syphilis, and chronic hyperthyroidism.

A common and very vital factor in the immediate causation of heart failure of the congestive type is auricular fibrillation. Its recognition and proper treatment by digitalis is very important. Overexertion in normal rhythm may also cause failure.

Heart failure of the congestive type must be differentiated from effort syndrome, hyperthyroidism, acute infections, pulmonary disease, and anemia.

Heart failure of the anginal type is the result of coronary sclerosis in general, with syphilis sometimes a factor. In this type auricular fibrillation is uncommon, except occasionally in paroxysms.

Anginal failure must be differentiated from the heart pain of mitral stenosis, of hypertension and of effort syndrome, and from acute and chronic abdominal disease.

Anginal failure may be present in a person with no signs of heart disease and no other symptoms.

Digitalis is, as a rule, not indicated in anginal failure. Nitroglycerin or amyl nitrite, morphine, but chiefly rest—physical, mental, and dietetic—are the therapeutic measures to be followed.

The amount of cardiac reserve in both types of heart failure is often amazing, the patient sometimes living for many years after the first symptoms of heart failure have appeared.

The Effect of Antisyphilitic Treatment on the Kidney.

In the *Wisconsin Medical Journal* for November, 1922, LORENZ and BLECKWENN state that although so much criticism has been leveled against kidney function tests commonly employed they feel justified in making the following statements:

All cases of syphilis before treatment should be carefully studied to determine whether or not the kidneys are functioning properly.

Many cases of syphilis will be found to be suffering from nephritis of varying degree which will clear up under antisyphilitic treatment, demonstrating probably the syphilitic origin of that nephritis.

These kidney function tests have the apparent advantage of disclosing kidney embarrassment before the usual signs of albumin and casts are demonstrated in the urine. They therefore advocate the use of the kidney functional tests before, during,

and after drug administration. If it is found that the drug administration increases the renal abnormality, it then becomes a matter of selecting the least irritating of the antisyphilitic measures.

In a border-line case whose renal mechanism might easily be injured by the larger doses of a drug generally employed, a careful study of the renal function will disclose the amount of drug that can be tolerated without such injury.

Although the actual percentage of cases which develop kidney lesions resulting from antisyphilitic treatment is small, it is still very essential to avoid such disaster, and it is strongly felt that the study as outlined above is imperative.

The most important finding not observed before to their knowledge is that a kidney function test made immediately after drug administration cannot be accepted as evidence of kidney impairment.

The Roentgen-ray Treatment of Acne Vulgaris.

JACOBY, in the *Boston Medical and Surgical Journal* of November 30, 1922, states that as it is never the agent but the response of the living cells to the agent that is responsible for therapeutic results, the least amount of rays necessary to produce these results in any given tissue should be employed.

In treating acne vulgaris by Roentgen ray, a standardized apparatus consisting of an interrupterless transformer, rheostat control, standard Coolidge tube, Coolidge transformer and control, and a milli-ameter must be used. The dosage is measured in skin units. The experiments of Remer and Willoughby show that a three-inch spark-gap and three milliamperes of current given for four minutes at an eight-inch distance delivered the amount of ray corresponding to four Holzknecht units, namely, four numbers on the Holzknecht radiometer. (This is the indicator of a color test dependent upon the coloration of disks of platinocyanide of barium by the *x*-rays.)

Four Holzknecht units, that is, four numbers on the Holzknecht scale, correspond to one skin unit, which is a sub-erythema or epilating dose. On the basis of his experimentation he devised a formula which has become known as the national formula for cutaneous therapy. The strength of the ray varies inversely as the square of the distance.

The present accepted technique in the treatment of acne is to give fractional doses of one-quarter skin unit (one Holzknecht unit) weekly for from ten to sixteen treatments. This number should be used even though all symptoms have disappeared following only a few treatments. It is very seldom that patients cannot tolerate this dose.

In some young females with fair, finely textured, highly colored skins, and in some cases of acne erythematosus also, low toleration has been found. In these cases a smaller dose is given, that is, one-eighth skin unit.

The question of idiosyncrasy is often brought up, but most authors deny this possibility and explain poor results by errors in dosage and imperfections in the methods used.

One-quarter skin unit is given once a week to each side of the face. In doing this there is ordinarily enough overlapping to cover the front of the face, but if there are many lesions on the chin and forehead, it may be necessary to give an extra one-eighth skin unit to these areas. The hair, eyes, and eyebrows are to be protected by lead-foil. In treating the back and chest, slightly larger doses may be given. By giving this amount at these intervals an erythema dose is never administered, since the effect of the first treatment has gone entirely before the next one is given. If there is the slightest sign of erythema, the dose is not repeated until its disappearance indicates normal tissue recovery. The presence of erythema is judged by noting the border between the area treated and the shielded skin about the eyes. This must be noted in clear natural daylight.

It is unnecessary to use any local treatment, and patients must be cautioned about the use of any soaps or salves containing drugs such as chrysarobin, iodine, salicylic acid, tar, mercury, resorcin, scarlet red, chloral hydrate, or sulphur for a considerable time before or after treatment, because of the fact that these substances render the skin more susceptible to irritation and burn.

Autogenous vaccines are frequently used by some as a supporting treatment, but most authors feel that this procedure promises nothing.

As in any disease it is also necessary to control any underlying factors such as focal infection, etc., when possible to do so. Regulation of diet and relief of constipation are frequently necessary, and scalp conditions which are usually associated with acne must be treated.

All potent therapeutic measures are dangerous in unskilled hands, and the *x*-ray is no exception. However, with caution, good judgment, and modern apparatus and technique, the Roentgen-ray treatment of acne vulgaris is not only the best method, but a perfectly safe one.

None the less, we hear a great deal about complications and sequelæ. Telangiectasis and atrophy can occur only from overdosage. This is so rare that it scarcely needs mention, but the following complications warrant a few words:

Dryness of skin. The skin may become drier than normal during treatment so that it is easily irritated by wearing apparel, etc., or too frequent washing. This condition is readily controlled by a simple ointment and is only transitory.

Freckles. Some brunettes show various degrees of pigmentation, but this condition is evanescent, although for the time being it is annoying to the patient.

Pitting. It is generally conceded that this is a psychological matter; that the pits are due to the disease itself, and as the disease clears up the pits simply become more conspicuous.

Superfluous hair. In so far as superfluous hair and acne are both due to an abnormal condition of the pilosebaceous gland system, we frequently observe the two conditions together. It will also be noted that usually the hair complained of is most marked under the chin, where practically no treatment is received.

He concludes that the use of the Roentgen ray in acne vulgaris is the best treatment we possess, and in the hands of an operator who follows modern measured technique, and who is careful to keep his apparatus in good working order, is perfectly safe.

The Pathology of Blackwater Fever.

In its "Annotations," the *Lancet* of November 25, 1922, states that in a critical review of recent work on the pathology of blackwater fever, Warrington Yorke points out that communications dealing with blackwater fever can be grouped under four headings: (1) Papers of an essentially clinical nature written by those visiting the tropics for the first time, whose interest has been aroused by this impressive disease. Their observations and impressions simply repeat what has been abundantly emphasized during the past twenty years. (2) Papers, mainly concerned with the endemicity of the disease, attempting to show by statistics the relationship between malaria or various kinds of malaria infection, and quinine, or length of sojourn in the tropics. These statistics are usually deficient in one or more essentials. (3) Papers dealing mainly with the treatment of the disease. Yorke considers that in the main these are without any value, and the claims made quite unjustifiable. (4) Papers dealing with the pathology of the disease. One of the most important of these is by Plehn (1920), who argues that owing to repeated destruction of the parasites during the febrile attacks the body becomes supersensitive to the malaria parasite protein, so that eventually the dissolution of quite a small number of these organisms may precipitate the crisis. In most cases the decisive cause of this destruction is quinine.

Plehn obtained no evidence that hemolysis

takes place in the blood-stream, neither is hemolysin found in the blood of blackwater fever patients. The evidence points to the kidneys as the seat of hemolysis, but the origin of the cylindrical plugs in the renal tubules is not clear. The inability to excrete bilirubin is important, as in the most severe icterus this substance is present in the blood serum. With regard to the production of jaundice, the evidence is not clear; in the worst cases the blood destruction is so great as to result in death without the supervention of icterus.

Authorities are divided as to whether a hemoglobinemia occurs in blackwater. Christophers and Bentley, Barratt and Yorke are of the opinion that it does occur, and L. S. Dudgeon (1920) remarks that the evidence of hemoglobinemia rapidly disappears from the blood and may be overlooked unless the examination is made at the correct moment. There appears to be no justification for the general statement that the specific gravity of the urine in blackwater fever is abnormally low.

The bulk of pathological and experimental evidence is against Plehn's theory of a primary renal lesion with hemoglobinuria as a secondary phenomenon. Nothing is known about the mechanism by which the hemolysis in blackwater is produced; in the case of paroxysmal hemoglobinuria, hemolysis takes place in the peripheral blood and cold is the exciting cause; no autolysin has been found in the blood of blackwater fever.

Radiotherapy of Uterine Bleeding.

In the *American Journal of Electrotherapeutics and Radiology* for November, 1922, SCHMIDT states that there are certain general considerations which have a very important bearing on the method to be employed. Surgery has been amply defended by its exponents, and it remains for the radiologist to bring forth the advantages to be gained by radiotherapy. In the first place a surgical operation is always attended by certain risks which, while reduced to a minimum, are still worthy of consideration. There is the danger of kidney complication, the shock and discomfort, and the weakened condition of many of these patients due to continual hemorrhages renders operation additionally hazardous. In addition there is the economic factor in the enforced absence from home or business for, at least, two or three weeks at the hospital, and the prolonged convalescence. Radiotherapy may be an office procedure, or at most a few hours in a hospital, unattended by discomfort and with small loss of time or risk. The effects are produced gradually and with little or no shock to the patient, and the results are certainly just as brilliant as are those of surgery. There are also certain patients who refuse operation and others whose physical condition is such that they could not stand surgical interference.

In considering a case in which a tumor is present the age of the patient is certainly an important point. There is no question but that in young patients in good physical condition surgery is more conservative and more to the patient's interest than radiotherapy. In patients near the menopause, on the other hand, if the tumor is not too large, radiotherapy is ideal. The main point brought out by the surgeon is that radiotherapy produces a destructive effect on the ovaries; this is true, and is the reason it is not the method of choice in young women. However, it is possible to protect the ovary when treating with the *x*-ray in such a manner that its function is not destroyed. This has been proven in a case reported by Pfahler and McGlinn, in which pregnancy followed relief of a fibroid by *x*-ray therapy. Since then other cases have been reported by several workers. We cannot so easily control the action of radium where it is necessary to give a large enough dose to affect a fibroma, and there should be other factors, such as the condition of the patient or refusal of operation, to determine the choice of radium.

The location and size of the tumor is important. Submucous and subperitoneal tumors are, as a rule, not ideal for radiation. However, we are frequently called

upon to treat these cases by radiotherapy and see them disappear without untoward effects. Of course, our technique must be perfect and sufficient radiation to produce sloughing avoided. Again, large tumors, size of a four months' pregnancy or more, are slow in being reduced and may more properly be treated surgically, especially if producing pressure symptoms. The smaller tumors are ideal for radiation, but even the large ones can be markedly reduced by radiation if treated with judgment and patience, and the hemorrhage can be stopped just as readily as in small tumors. Inflammatory conditions of the annexa contraindicate radiation, especially if radium be the agent used. As these complications usually require operative attention, this class of cases properly belongs to the domain of surgery.

The possibility of malignant degeneration being present in fibroids has been held as a point in favor of surgery. While the possibility must be admitted, the percentage of such cases is certainly very small. In a large series of cases the variation has been between four and ten per cent with different observers. Radiotherapy has been very effective in uterine malignancy, and it is certainly reasonable to suppose that, if a malignant condition were present, it would probably be destroyed along with the fibroid, as we have not only the direct effect of radiation but the marked diminution of blood supply as a result of our treatment. This cannot be so potent a factor, as in a large series of cases Schmidt says he has not seen malignancy follow any case of radiation, and similar expression has been made by men of larger experience in radiotherapy.

While the treatment of fibroids is still the subject of considerable debate, radiologists and surgeons are agreed on certain points:

All tumors less than a four months' pregnancy may properly be treated by radiotherapy.

All tumors not complicated with inflammatory condition of the adnexa may be treated by radiotherapy.

All tumors producing pressure demanding prompt relief or associated with pregnancy are surgical, but if pressure symptoms are not urgent, it is justifiable to use radiotherapy.

All tumors showing distinct malignant changes had better be treated by radiotherapy first and followed by surgery.

Any case refusing operation or in poor physical condition justifies the use of radium or *x*-ray, except when complicated with inflammation of the adnexa or pregnancy.

The debatable points are:

Patients with complications unrelated to the uterus or adnexa. Some surgeons have included such conditions as gall-bladder infections or stones, appendicitis, pathological changes in the kidneys, gastrointestinal lesions, perineal lacerations, fistula, and hemorrhoids. If, in addition to the removal of the fibroid, we attempt to correct these conditions, most of which are serious operations in themselves, we will find the operative mortality very high and few of the patients sufficiently able to stand such procedure, especially at the age of forty or more. It would seem far better in these cases to treat the fibroid with the simple method of radiotherapy and reduce the tumor in size, stop the bleeding, and give the patient a chance to regain her health to a certain extent; and then, if necessary, proceed with the surgical treatment of the complications with far less risk to the patient. None of the conditions mentioned would be aggravated by radiotherapy and the general condition of all would be benefited. It would seem, therefore, that these complications should indicate radiotherapy, rather than contraindicate it.

Suspected malignancy or the danger of malignant degeneration *following radiation.* If malignancy is suspected but not proven, the operation of supravaginal hysterectomy leaves the cervix the most frequent site of malignancy, and very little is gained. If a complete operation is done the increased mortality would more than equalize the small percentage of malignant

degeneration found in these cases. The brilliant results of radium in cancer of the uterus are admitted by all, and it would seem more rational in these cases to use radium in such dosage that the entire uterus would be affected and reduced to an inert fibrous mass. If these cases are treated with proper dosage the results will be more satisfactory than if treated by surgery. Most radiotherapists report that they have not seen the malignant degenerations following radium treatment which the surgeon is wont to fear as a possible sequel to this form of treatment.

The technique of radiotherapy is important in each individual case. In some radium should be used, in others the *x*-ray, and in still others a combination of the two.

The technique of radium treatment in fibroids must vary with the case, and each must be considered from every angle. A general anesthetic is necessary and strict asepsis must be observed. A preliminary curettage may be done and the scrapings examined pathologically.

In most cases 50 mg. of radium will suffice. This is enclosed in a brass filter of 0.5 mm. surrounded by rubber of the same thickness. The cervix having been dilated, the radium is passed into the cavity of the uterus, the rubber tubing being long enough to extend outside the vagina. The vagina is packed with gauze and the rubber tubing fastened to the leg by adhesive. This is allowed to remain for from twelve to forty-eight hours, depending upon the size of the tumor. At the age of forty Schmidt does not hesitate to produce a permanent amenorrhea. In some cases in which there is suspicion of malignancy in the cervix, two tubes of 50 mg. each are used in tandem fashion and allowed to remain twenty-four hours. Sufficient time should be allowed to elapse, for the reduction in size is slow and will continue over quite a period. Usually three months is allowed unless some unusual condition would demand a repetition of the treatment outlined. Frequently it is not necessary to repeat the treatment at all. All bleeding should be stopped within a month to six weeks.

The Dangers of Filix Mas.

In its "Annotations" the *Lancet* of December 2, 1922, states that fatal cases of poisoning by filix mas are rare in England. In 1914 Schotten published a fatality resulting from the administration of filix mas to a woman suffering from Addison's disease. The exact dosage in this case was not ascertained, but the case was instructive as showing that filix mas may prove fatal even when prescribing it simultaneously with castor oil is avoided. Several cases have been recorded of alarming symptoms, culminating even in death, after the administration of castor oil with the extract of filix mas, and there seem to be good grounds for believing that castor oil favors the absorption of the most toxic constituents of the extract. One recorded case is specially instructive in this respect. A child took 240 gr. (16 gm.) of the extract alone without ill effect; three weeks later half this quantity taken with the same amount of castor oil was rapidly fatal.

A more recent paper by Olav Hanssen is instructive as showing that even in the absence of castor oil, and in doses hitherto regarded as moderate, the extract of filix mas almost invariably provokes bilirubinemia. It is not uncommon when, as is the case in Germany and Italy, the extract is given in as large doses as 20 gm., for jaundice to be provoked. But though Hanssen gave only 10 gm., the bile content of the blood was almost invariably increased, and in some cases there was slight pigmentation of the skin. During the past six weeks he has given the extract of filix mas to 20 of his hospital patients on the morning following a day of dietetic restrictions. The combined administration of 10 gm. of the extract with 2 gm. of kamala in barley broth was followed in an hour by a dose of jalap and calomel. Only in one case, that of a boy, aged eleven, who was given only 5 gm. of the extract, was there no bilirubinemia. In the remaining cases the discoloration of the serum was demonstrable within two to three hours of the administration of the drug; it culminated in one or two days,

after which it gradually disappeared. Urobilin was not invariably demonstrable in the urine, which never contained bile pigments or albumin.

Grawitz has assumed that the color changes induced by the extract of male-fern are the result of injury to the liver and increased blood destruction. Hanssen has never succeeded in demonstrating blood destruction in his cases in which the percentage of hemoglobin and the number of the red cells were increased rather than diminished—a result traceable to diarrhea and the resulting concentration of the blood. Further observations have led him to the conclusion that the extract of male-fern interferes with only one of the many functions of the liver—*i.e.*, the secretion of bile—and that there is no reason for regarding the jaundice of male-fern treatment as hemolytic. Although no permanent ill-effects were observed in his 19 cases, bilirubinemia possesses a sinister significance when it is regarded as an early sign and stage of acute yellow atrophy of the liver, and as there is also the risk of chronic cirrhosis of the liver developing on the basis of male-fern bilirubinemia. The diazo-reaction might throw some light on the actual pathological changes.

Hanssen is obviously justified in urging caution in the exhibition of this drug, and in demanding that it should not be purchasable without a doctor's prescription.

The Treatment of Accessory Nasal Sinus Disease in Children.

LEMERE, in the *American Journal of Diseases of Children* for December, 1922, asserts that as we recognize the prevalence of antrum disease in children, and as we appreciate its far-reaching secondary results, we are impressed with the necessity of working out a satisfactory treatment other than an operative one, or one necessitating prolonged hospitalization. As his patients were mostly office patients, the trouble which ensued on any attempt to carry out effective treatment was so appalling that for some time he contented himself with supplying washes and instillations to be used by the parents in the less exciting environment of the home. However, he found these methods exceedingly unsatisfactory and unreliable. He then started to train these children to allow him to use the postnasal spray with compressed air. He found that after winning their confidence and applying the spray to their parents as an example of its painlessness, after two or three sessions he was able to wash out the nasal fossæ thoroughly from the postnasal fossa. This he considers the very best way of cleansing the nasal fossæ and also of freeing the ostia or the antra. One has only to see it applied to these little ones to realize its efficiency in expelling large quantities of muco-pus from the throat and nose.

There is a great advantage of the postnasal spray over douches and anterior nasal syringing in that he has never once seen any of the wash or infected secretion driven into the middle ear through the Eustachian tube. Any spray applied through the anterior nares, if it is to be of sufficient force and volume to clear the nasal fossæ and pharynx, will cause considerable trauma and bleeding, thus defeating its aim. With the postnasal spray the only bleeding is from the pharynx, and this only when adenoids or granulation tissue are present. This bleeding rarely takes place after the first two or three applications and seems to be beneficial in relieving the congestion of the nasopharynx.

The postnasal spray should be applied as frequently as is necessary to keep the head clear and to allay the general symptoms. This application should be made daily in some cases, and in others only once or twice a week. The average is every other day for about a month, and then less frequently. The procedure is of such a simple nature that an inexpensive apparatus is provided for the parents and they are instructed in its use. This, he thinks, is

the proper solution of the problem in many cases. There are so many of these mild antrum conditions prevailing which demand treatment if the children are to reach their proper development, that rhinologists and pediatrists would be swamped with these patients. The parent has only to see the increased well-being resulting from a few weeks of this treatment to be willing to provide the means of continuing the treatment at home.

Any good alkaline and antiseptic solution can be used. He has for many years employed the following modification of Dobell's solution as a nasal wash: Sodium biborate, sodium bicarbonate, 6 gm. each; phenol, 2.5 cc; glycerin, 15 gm.; peppermint water, 100 cc; and distilled water, sufficient to make 480 cc. This solution is used freely in an atomizer provided with a No. 56 postnasal tip.

He has used this treatment for the past two years for patients aged from three to eighteen years. All patients have improved very greatly in that the symptoms and signs were greatly lessened or disappeared entirely for a time. During these periods of remission the strength and resistance of the child were increased, and on reinfection a few treatments would be sufficient to effect recovery. It is his belief that this treatment will often eradicate the infection in children under eight years. In children over eight, it is mainly supportive of normal development until the child is sufficiently mature to permit of making a patulous opening from the antrum into the inferior meatus by means of an operation. Only a small percentage of children have the poise to go through with a nasal operation under local anesthesia, so that ether will generally be necessary when it is considered advisable to operate.

The exact relationship of the antrum to the inferior meatus is ascertained by a careful Roentgen ray study. If the antrum has developed sufficiently low to lie well below the inferior turbinate attachment, the opening is made in the inferior meatus; if the antrum has not descended this far, the opening should be made in the middle meatus. He has found that the opening made in the middle meatus has a tendency to close, and that often it is difficult to find it some months after operation. In making the opening from the inferior meatus, the inferior turbinate is turned up out of the way and by means of a bone curette and rasp a sufficiently large opening is made so that later a cannula can be introduced for washing. [In our experience an electrically driven drill or small trephine is better.—ED.] The inferior turbinate is now turned back to its proper place. If the inferior turbinate covers up the opening so that it would be impossible to introduce a small cannula without pressure, it is advisable to remove a small portion of the anterior end of the bone, as much of the success of after treatment will depend on the possibility of painless washing of the antrum. It must be emphasized to the parent that the operation will not cure the condition but only render the antrum accessible to treatment, and that in order to effect a cure the patient should be under periodic treatment for months and under observation for at least a year.

Instillations of solutions of argyrol 15 per cent, phenol in glycerin 2 per cent, chloramine-T in glycerin 1 per cent, dichloramine-T in chlorcosane 1 per cent, are useful whether made in the nose after the postnasal spray treatment or injected directly into the antrum as postoperative treatment after the antrum has been opened.

The Mechanical Treatment of Severe Dropsy.

CARR, in the *Lancet* of December 2, 1922, states that the simplest and most effective method of treating severe dropsy—either cardiac or renal in origin—which does not improve under the administration of the usual drugs, heart tonics, aperients, etc., is not taught or practiced to any large

extent in the medical schools. The great majority advise the insertion of Southey's tubes into the swollen feet or legs. Undoubtedly in this way large quantities of fluid may be drained off, but the tubes inevitably cause a certain amount of irritation in the edematous, badly nourished tissues, so that sooner or later inflammatory changes are set up around them and the discharge of fluid gradually ceases. A far simpler and usually also more efficient method is merely to puncture the feet with a surgical needle. The punctures should be made where the swelling is most marked, usually over the dorsum and the malleoli, five or six close together in each situation. From such punctures fluid will often flow steadily and continuously for several days, and if, as not uncommonly happens, they close before the dropsy has disappeared fresh punctures may at any time be made in adjacent areas. There is not the slightest need for actual incisions into the subcutaneous tissues, such as are sometimes made. The latter may drain well for a short time, but they soon get blocked by inflammatory change and remain as troublesome, slowly healing wounds, very liable to become septic.

Before puncturing it is advisable to get the patient out of bed into a chair for a few hours, so that the feet become the most dependent parts and the edema fluid is able to gravitate down into them. The relief afforded by puncture is then more rapid. If possible the patient should remain in the chair whilst the drainage continues. This is not difficult, at any rate, in cases of cardiac dropsy, for patients with advanced heart failure are often far more comfortable and sleep better in a well-arranged armchair than in bed. Should ascites be present also, the drainage of the feet first relieves this, and then the edema gradually diminishes from the top of the thighs downward. Paracentesis of the abdomen is rarely necessary.

Before making the punctures the skin of the feet should be cleaned as for a surgical operation, being first washed with hot soap and water, then rubbed with ether, and finally painted over with a 2-per-cent solution of iodine. The punctures should be made with a large, straight surgical needle and afterward covered with sterile gauze and sterile wool, changed as often as may be necessary. The feet may be supported on wooden blocks placed in a large basin into which the edema fluid escapes.

In cases of renal dropsy it is always desirable to avoid any form of mechanical treatment if possible, for although great immediate relief may be obtained, yet, no matter what precautions are taken, the wounds are likely to become infected, a spreading inflammation is set up in the skin and subcutaneous tissues, and a fatal termination soon follows—an example of the general rule that in cases in which the excretory function of the kidneys is much impaired the resistance of the tissues to bacterial invasion is greatly diminished. Nevertheless if, as sometimes happens, true renal dropsy is so extreme and so entirely unresponsive to other forms of treatment that something further has to be done to avoid ulceration or spontaneous rupture of the distended skin, the simplest and safest procedure is undoubtedly the needle puncture, as the injury to the tissues, the size of the wounds inflicted, and the mental disturbance of the patient are thus reduced to a minimum. With cardiac dropsy the risks of surgical interference are very much less.

The Relief of Pain in Herpes Zoster by Paraffin.

Fox, in the *Journal of the American Medical Association* of December 9, 1922, states that this new method was reserved solely for those suffering from pain severe enough seriously to interfere with sleep. Experience soon revealed that the best results were obtained by a daily application of the paraffin, it seldom being necessary to continue the treatment for more than a week. In even the severest cases the appli-

cations of the paraffin gave almost immediate relief, and were regularly followed by more or less freedom from pain for twenty-four hours and by a complete night's rest. The most convincing proof of the efficacy of this treatment was shown by patients who had obtained complete relief from pain, but who for some reason or other had not returned for several days, during which time the pain had returned. By further treatment the pain was again promptly relieved.

The technique of treatment consisted simply of spraying the melted paraffin with an atomizer on all of the cutaneous lesions and covering such areas with a generous layer of absorbent cotton, held in place by bandages. For convenience the atomizer was attached to a compressed air outlet. In a few cases the paraffin was applied by cotton swabs, an equally efficient, although slower and less convenient, method. When fresh applications were made, the previous layer of paraffin was gently removed. The form of paraffin used was parresine. This is described by the manufacturers as a "wax-like preparation consisting of paraffin so treated by the addition of gum elemi, Japan wax and a purified asphalt as to modify its physical properties, especially as regards ductility, pliability, and adhesiveness." The preparation begins to melt at from 114° to 117° F. and becomes completely liquid at 120° F.

There were seventeen patients with active lesions selected for treatment. Of these, seven were males and ten females. Their ages ranged from eight to fifty-nine years, the average being thirty-five. The duration of the disease at the time treatment was begun averaged six days. The eruption was situated on the trunk in thirteen cases, affecting usually the pectoral and dorsal regions. In four cases there was also some involvement of the neck and arm, and in two cases of the abdomen. One case involved the thigh, one the hip, one the buttock, and two the supraorbital region. The number of treatments varied from two to six.

The paraffin treatment was also tried in three cases of neuralgic pain persisting after the disappearance of the eruption. One patient had suffered from pain for two years, one for six weeks, and another for four weeks, following an ordinary attack of zoster. In no one of these cases did the paraffin appear to be of any value in relieving pain.

A word of caution should be given to those who care to give the paraffin method a trial. When applying the new coat of paraffin to the lesions, care should be taken to remove the old layer very gently, avoiding possible rupture of the vesicles. This can generally be accomplished with ease. If the old layer tends to be too adherent, it should be allowed to remain in place and a fresh coat of paraffin sprayed on the surface.

In a few of his cases some of the vesicles were ruptured because of the overzealous removal of the old dressing, and in one case (that of a colored woman) there was quite a severe pustular eruption lasting several days and accompanied by constitutional symptoms. However, with any method of treatment the eruption may become pustular or even gangrenous and produce severe and permanent scarring.

In conclusion, it should be said that the paraffin method is recommended only for cases of zoster during the eruptive stage and accompanied by severe pain. The treatment is simple, and the results in his experience have convinced him of its value.

Pregnancy Complicating Heart Disease.

PARDEE in the *American Journal of the Medical Sciences* for December, 1922, states that the management of patients with heart disease during the pregnancy is vitally dependent upon these observations. It is evident that no matter what the valvular disease or the size of the heart, the the patient is safe as long as she does not develop severe heart failure. Therefore abortion need never be advised on any grounds but those of the appearance of heart failure. Nor need we fear its sud-

den and unexpected appearance, for it is a very rare event for severe failure to appear suddenly without warning; he has seen it once only in fifty cases. Usually it comes on gradually over a period of several days or weeks. Occasionally it comes less gradually during the hours of labor, but practically always gradually, so that when its onset is recognized we can take steps to ward it off before it is too late. Quickening of the pulse and an increase in the respiration are the first signs in any case, and along with these may go the finding of persistent râles at the bases of the lungs posteriorly which do not disappear with deep breathing. If these signs are disregarded the pulse and respiration become still quicker and edema of the lungs may appear, with cyanosis and frothy sputum. Edema of the lungs may sometimes appear very abruptly in a patient who has previously shown some quickening of the pulse and respiration.

The secret of the successful treatment of these patients is to endeavor to prevent the appearance of pulmonary edema. During pregnancy when the pulse and respiration are constantly more rapid than normal and râles appear at the bases of the lungs, the patients should receive the usual treatment for heart failure of this degree. They should be kept in bed on a light diet with restricted fluids and should be given a properly thorough course of digitalis for at least two weeks. If this does not relieve the dyspnea and diminish the râles in the lungs, and usually it will do so, then, and not until then, does he feel that operative interference is indicated.

When interference is indicated in these patients, no matter whether during pregnancy or during labor, the operation is being performed for the purpose of relieving a strain on the heart which is trying it beyond the limit of its capabilities. It seems almost unnecessary to make this statement, and yet he thinks that only by facing it squarely can we be brought to see what sort of operation is indicated and what sort contraindicated. The operation must be such a one that it relieves the strain upon the heart promptly and must not itself impose an added strain. If the cervix is not dilated the operation of choice seems to him without question to be the abdominal section. If the cervix is dilated and the head engaged, then forceps may suffice. He is not favorable to version and extraction, for he feels that the shock of the intra-uterine manipulation is a factor to be avoided, so with a high disengaged head he would advise abdominal section even with some dilatation of the cervix. Ether is the anesthetic of choice, and gas he thinks very dangerous even if given with oxygen, for it raises the blood-pressure and increases the work which the heart must do, thus throwing an added strain on the circulation.

He says never operate during a period of severe cardiac failure. The risk is greater then than at any other time, and he thinks greater with operation than without it. The added strain may be the decisive factor in causing death. We should aim to operate either before severe failure has set in or after it has been recovered from, and thus deal with a heart whose reserve is not entirely used up.

When a patient has reached such a state of cardiac failure that treatment has necessitated rest in bed, and when treatment has resulted in improving the compensation so that râles have disappeared from the lungs, and perhaps the effort of walking on the level can be undertaken without undue shortness of breath, it is then time to consider what this patient's further course should be. How important is it that this baby should be born? How much chance with her own life does the mother wish to take?

Interference may be advisable, but it is not obligatory, for some cases go on very well even after an attack of severe decompensation, and may, with proper care, complete their pregnancy and labor without further serious failure. Other cases though will relapse even with the most careful treatment, and these should have an abdominal section performed when the relapse

is seen to be imminent. The severely ill patients should never be allowed to go beyond the fortieth week, for a large baby is, as has been pointed out, very undesirable. With patients who are considered to be of the most serious type it seems to him that it would be well to consider inducing labor at the eighth month, thus insuring a small child and an easy delivery, though this is less true with primipara than with multipara.

Sometimes in hospital work patients are first seen during an attack of acute cardiac failure with edema of the lungs. They are markedly dyspneic, cyanotic, coughing up pinkish frothy sputum, and show a very rapid heart rate, 120 or over, distended veins in the neck, and labored rapid respirations. If this woman is in labor and it cannot be quickly ended by a medium or low forceps operation, her case is nearly hopeless. Even before the operation is attempted, though, the cardiac failure should be treated to, if possible, improve her chances of pulling through. A hypodermic of ¼ grain of morphine sulphate along with 1/50 grain of atropine sulphate should be given at once. Phlebotomy should be done and continued until the distended neck veins are collapsed, removing from 5 to 10 or more ounces of blood if necessary to produce this effect. Digitoxin should be given intravenously in a dose of 2/100 grain.

This treatment will usually result in a temporary cessation of labor, an improvement in the respiratory distress, and a diminution of the râles in the lungs. The patient should be carefully watched when labor shows signs of starting again, and if the dyspnea increases an operation, either low forceps or Cæsarean, must be done in spite of the poor chances that it offers. An expectant policy at this time offers, he thinks, a poorer one.

If the woman is not in labor this treatment affords a very good chance of recovery. He has had only one death from pulmonary edema when the patient was not in labor, and this was during her third attack. When the patient is not in labor he has used oxygen inhalations from a closed inhaler with great benefit to the cyanosis and decrease in the dyspnea, and has also noted a slight slowing of the heart-rate. The oxygen used was diluted with about one-third air and was given during alternate fifteen-minute periods. There is no indication for operative interference in these cases unless the above measures do not bring about improvement, and, as he believes, they usually do so.

Napkin Eruption on Infants' Buttocks.

In the *Pennsylvania Medical Journal* for December. 1922, CRAWFORD states that the treatment of Jacquet's napkin area eruptions consists of simple measures. Locally cleanliness is most important. It is advantageous to wash the buttocks with a solution of boric acid. After careful drying a dusting powder may be used consisting of 2-per-cent boric acid powder in talc; or the mopping on of a powdery lotion composed of 5 per cent each of calamine and zinc oxide powders in lime water, to which 2-per-cent boric acid may be added, is good. A lotion of 5 per cent each of bismuth subnitrate and zinc oxide in lime or rose water, or one of equal parts each of milk of magnesia, lotio nigra, and lime water may be indicated. In some cases dusting powders and powdery lotions do not act so well, and in these Lassar's paste, either half or full strength, may be applied as a thin protective coating.

The parts should be cleansed gently with a mild soap and warm water, dried, and then treated with one of the above or similar lotions. The lotions are first shaken and then gently mopped on the affected surfaces. The diapers should be of some soft, non-irritating material, should be scrupulously clean always, and careful watch made for their soiling, when they are immediately changed. Diapers should never be washed in strongly alkaline soaps, and after washing should be rinsed in a

weak solution of boric acid, phenol, or cresol, etc. In institutions, sterilization will prove advantageous.

Indigestion, fermentation and other gastrointestinal disturbances are to be corrected.

Urticaria and lichen urticatus, which are frequently noted, will likely be due to a sensitization with some food element. Too frequent feeding or overloading the stomach at the feeding hour is a likely cause of urticaria and gastric disturbance. Any suspected reflex disturbance should be corrected, if possible. Alkalies by mouth often prove of value.

In the treatment of infectious conditions such as impetigo, vacciniforme ecthyma, etc., mild antiseptic washes such as a 5-per-cent solution of boric acid or a 1:5000 bichloride solution, followed with a mild antiseptic ointment such as a one-per-cent ammoniated mercury, will bring about prompt healing.

Infantile seborrheic dermatitis responds readily to a mild (1-per-cent) sulphur ointment.

Menorrhagia in Young Girls.

In the *Lancet* of December 16, 1922, GRAY reminds us that thirty-two years ago Lawson Tait published the first volume of the book on Diseases of Women which he did not live to complete. To the medical students, pre- or post-graduate, of those days that book was like a new "Sartor Resartus" in their general reading. Gynecology has, of course, left Tait far behind in some things. We do subtotal hysterectomy every day for uterine myoma, and we leave the ovaries if we can. We say that his insistence on the unique character of human menstruation was confusing and phylogenetically absurd. We talk of hormones where he knew only drugs. In short, he is nearly as obsolete as Macaulay or George Eliot. Yet as a teacher—this is not the time to speak of him as a surgeon—he had that first quality of greatness that he could make his facts live.

About the treatment of menorrhagia he taught two things: First, that it was a supreme mistake to give iron, however anemic the patient might be, until the normal rhythm and quantity of menstruation had been restored. He wrote: "If one thing is more certain than another in my limited belief in the efficacy of drugs, it is that iron has a specific influence in producing hyperemia of the pelvic organs." On the same page he gives the case of a school-girl, anemic from hemorrhage: "Dosed with iron by an inexperienced and somewhat obstinate practitioner whose only notion about the disease of female adolescents was—'Anemia, give large doses of iron.'"

At the time it was possible to find in the newest text-books on gynecology prescriptions for menorrhagia containing iron—one gives pill of aloes and iron. Indeed, even the 1908 edition of Kelly's "Medical Gynæcology" reproduces from another physician a prescription containing a small dose of exsiccated sulphate of iron with ergot and bromide of potassium. Tait's own famous chlorate of potash treatment was described in the one published volume of his book. He gave credit to Professor Binz, of Bonn, for the view that the salts of potassium reduce pelvic hyperemia; he pointed out that at that time—"Every one used potassium bromide in conditions believed to be due to hyperemia;" that he had tried sodium bromide and found it not nearly so efficient; but that he had found other potash salts quite as useful and less depressing than the bromide. He had fixed on the chlorate of potash because it interfered with no function and brought out no skin eruption, and it might be given for a long time with no evil result. He wrote: "I give it generally in five-grain doses with a bitter infusion and two drops of dilute muriatic acid to dissolve it; combining it with ergot, if necessary, during the loss." A friend who worked under Tait in Birmingham told him that this mixture was "on tap" at his hospital. It has

certainly proved a most valuable mixture. Personally, Gray has not very often found it necessary to add the ergot, but he often adds liquid extract of cascara in a small dose and finds that in the slightly acid mixture the aperient is very effective. He believes that those who followed this treatment will be prepared to indorse Tait's words when he promised that "it will be found to exercise an almost infallible influence on uterine hemorrhage, unless there be some mechanical cause for it."

Reviewing its strikingly successful effect in several hundred cases in the light of present teaching, Gray wonders whether Tait's "hyperemia of the pelvic organs" may not be translated into Blair Bell's "ovarian excess," or at least into that division of his category which is marked only, or mainly, by profuse and protracted menstruation. If so, the chlorate of potassium has some advantages over suprarenal and pituitary extracts. It can be given more conveniently than adrenalin and is certainly less costly than either organic extract. Here we may recall that the investigation of the interstitial tissues in human ovaries is much behind that of the thyroid, pituitary, and suprarenal glands, and that some authorities even deny the existence of true "glandular" interstitial tissue in the human ovary. Perhaps, therefore, for the present Tait's terminology is as safe and possibly as accurate as any other.

Cholera Acidosis and Its Therapy.

TSURUMI and TOYODA, in the *Archives of Internal Medicine* for December, 1922, state that the alkali content of the blood in mild cases of cholera is practically the same as in health, but in the severer, and especially in the very serious cases, a marked decrease of alkali is observed, leading to acidosis.

By the injection of alkali, the blood alkali in cholera cases is generally increased temporarily or permanently; that is to say, the number of drops by the stalagometer (according to Traube's method) increases. The occasional decrease of the number of drops is believed to be due to the increased acid produced in the body and to the great increase of tolerance to alkali in consequence of acidosis in an acute form.

The mortality after the injection of sodium bicarbonate-saline in forty-nine cases was 28.4 per cent, while the mortality in 480 cases in which no alkali was given, but instead saline, or serum, or both, was 42.7 per cent, a difference in favor of alkaline therapy of 14.3 per cent.

The Effect of Atropine on Gastric Function as Measured by Fractional Analysis.

LOCKWOOD and CHAMBERLIN, in the *Archives of Internal Medicine* for December, 1922, state that from a number of experiments which they cite a fairly accurate and concrete picture is obtained of the clinical action of atropine on the stomach. It seems evident that there is a secretory and motor depressing action in direct relation to the dose given, yet on the other hand, using doses compatible with safety it is impossible to demonstrate the marked action seen on lower animals. This may be due to a different pharmacological action.

In three cases the local application of 1/50 grain of atropine in one ounce of water to the fasting stomach mucosa made no marked change in the secretory curve after an Ewald meal, except that the high point of free and total acidity was slightly lowered in two cases, in which also the emptying time was slightly delayed. This seems to prove that there is little or no direct local action on the mucosa, as assumed by Bennett and Dodds. but that the effect comes only after absorption.

In eighteen cases the effect on the secretory curve after an Ewald meal was noted from administration of maximal clinical doses either hypodermically or continuous dosage. The average free acidity was reduced 32 per cent and the average

total acidity 27 per cent. In no case was the average free or total acidity higher with atropine than without it. This reduction effect seemed more pronounced in lowering the high point of the curve, although in two cases both the free and total acidity rose to a higher point after atropine than had occurred in the test curve.

The average emptying time was delayed ten minutes, although three cases showed a more rapid evacuation after atropine. These cases occurred in the series which received a hypodermic of 1/50 grain of atropine an hour previous to the meal, and may have been due to greater relaxation of the pylorus.

They conclude (1) that the effect of atropine on the human stomach is to depress both the secretion and motor action, but is much less than that observed on lower animals. (2) Maximal clinical dosage of atropine depresses both the free and total gastric acidity about 30 per cent. (3) The same dosage lessens motor movements in the human stomach enough to delay the evacuation time after an Ewald meal about ten minutes. Bile is more frequently observed after atropine, probably due to greater relaxation of the pylorus.

The Action of Sodium Salicylate upon the Formation of Immune Bodies.

SWIFT, in the *Journal of Experimental Medicine* for December, 1922, states that rabbits treated with sodium salicylate in daily doses of from 0.16 to 0.2 gm. per kilo of body weight and at the same time immunized with intravenous injections of streptococcus viridans, both living and in the form of vaccines, and also with washed sheep red blood cells, showed diminished complement-fixing antibodies, agglutinins, and hemolysins when compared with controls similarly immunized.

If the antigens were treated with sodium salicylate *in vitro* and subsequently injected intravenously into rabbits, the animals usually showed lower antibody curves than did rabbits that received the untreated antigen intravenously and sodium salicylate by stomach tube.

He believes the beneficial effect of sodium salicylate in rheumatic fever patients probably cannot be attributed to an increased production of circulating immune bodies against the infectious agent. This is, however, no contraindication to the administration of salicylates to patients suffering from infectious diseases.

[It will be noted that the doses were rather large.—ED.]

Concerning the Vomiting of Pregnancy and its Treatment.

SCHULZE, in *Minnesota Medicine* for December, 1922, states that the treatment of the pernicious vomiting of pregnancy calls for the correction of any reflex factors, the treatment of a neurosis if any exists, and the correction of all errors of hygiene; it calls for isolation and hospital care; and time can be saved by not attempting any oral medication. Three conditions must be combated without delay, namely, dehydration, carbohydrate deficiency, and the vomiting. This can be done by the rectal administration every four hours of six to ten ounces of a five- to twenty-five-per-cent lactose solution with sixty grains of bromide added. Carefully given, this should be retained, but if not, subcutaneous and even intravenous administration may be resorted to, although he has never found it necessary.

This treatment resupplies fluid to the tissues and saturates them with carbohydrates easy of assimilation and restores the detoxicating power of the liver, while the bromides in such large doses bring about a condition of bromidization which is highly desirable. This state of bromidization is akin to the state of hibernation of the lower animals in that metabolism is at a very low level and the nutritive value of the carbohydrate thus administered suffices for the time being. If there is no vomiting for

forty-eight hours the patient may be allowed a soft carbohydrate diet by mouth, without liquids, in addition to the rectal feedings. Gradually the strength of the lactose can be reduced and the amount of the bromides also. Glucose can be substituted for the lactose, while chloral hydrate instead of the bromide at the evening feeding will promote sleep. If the carbohydrate diet is retained, proteins may next be added, but fats must be left until the last.

Patients whose vomiting is not sufficiently severe to warrant hospital isolation may be treated at home by means of a high carbohydrate diet partaken of frequently during the day rather than the usual three meals. The lactose solution may be taken by mouth. Alkaline solutions may be administered with the lactose or alternating with it, but it must be remembered that alkalies, while they overcome the condition of acidosis, do not combat the condition which produces it. The urine should be examined frequently to detect a glycosuria.

In 1918, Duncan and Harding reported seventy cases of mild, moderate and severe vomiting treated in this way, all of whom recovered and went to full term. In 1920, Titus reported seventy-six cases, and in 1921 Harding reported 200 cases with but few failures. These men worked independently of each other.

Surgical and Genito-Urinary Therapeutics

Prevention of Venereal Disease.

BAYLY *(New York Medical Journal and Medical Record,* Nov. 1, 1922) as honorary secretary and representative of the Society for the Prevention of Venereal Disease notes that this society takes a stand upon three main principles:

The first is that it is the duty of every good citizen, man or woman, to live a chaste life. He or she who violates the law of personal chastity not only commits a sin, but does injury to the nation and the empire.

Secondly, it is the office of medical science to prevent the consequences of sexual immorality. There is no doubt that venereal disease is a cause of widely spread suffering among all classes. The Royal Commission on Venereal Diseases made the following statement: "While we have been unable to arrive at any positive figures, the evidence we have received leads us to the conclusion that the number of persons who have been infected with syphilis, acquired or congenital, cannot fall below ten per cent of the whole population in the large cities, and the percentage affected with gonorrhea must greatly exceed this proportion." It is impossible to overestimate the evil of such diseases prevailing on so large a scale. For the tragic fact in sexual immorality is that its consequences are not limited to the persons who commit it, but they pass to innocent women and children who are in no manner or degree responsible for it.

Thirdly, the society holds that venereal disease can be prevented by immediate self-disinfection, provided it is intelligently applied. Immediate self-disinfection, like many other preventive measures, may be occasionally inoperative through misuse or delay. But this fact is not an argument against its efficacy, and only strengthens the hands of those who desire to instruct the public in its proper application. The society also insists upon the obligation of seeking and testing further new measures of prevention.

The society looks with favor upon all curative measures in respect of venereal disease, and heartily approves the institution of venereal clinics.

The doctrine that the sins of the fathers are visited upon the children cannot be held

to be a reason for forbidding the alleviation of human suffering; and it is opposed to the example of Him who said, "Behold thou art made whole; sin no more, lest a worse thing come unto thee."

The Society for the Prevention of Venereal Disease teaches that instruction in the methods of self-disinfection should not be refused to men who have reached adolescence, to adult women if they desire it, or even to younger persons at the discretion of their parents or those responsible for their welfare. It advocates the propagation of such knowledge as may tend to diminish venereal disease and its grave consequences by lectures and leaflets, assuming that in general the lectures are attended and the leaflets received by such persons only as have reached the age of adolescence. It wishes also to keep an open mind for all such social and medical developments as may tend to the extirpation of the scourge which has so long afflicted humanity.

To instruct the public as to the great importance of self-disinfection at the time of exposure to risk as a preventive of venereal disease, and the methods of application of such disinfectant.

That such instruction should be given only to men above the age of eighteen, to adult women on demand, and to younger persons in special cases at the discretion of those responsible for their welfare.

To insure the sale of the disinfectants required, together with full instructions to such persons, but to such persons only.

That instructions regarding the nature and application of such disinfectants should be conveyed to such persons: By leaflets supplied with the disinfectants at time of sale, and by attendants at public conveniences on demand; by lectures; by medical officers of venereal clinics; by officers or officials in charge of naval, military, and industrial units.

To advocate such further steps for the prevention of venereal disease as may from time to time be deemed advisable by the executive committee.

Limits of Local and Regional Anesthesia.

CRANMER (*The Journal-Lancet*, Nov. 1, 1922) thus concludes a paper on this subject:

Acute inflammatory areas cannot well be anesthetized by the infiltration method.

Following large hemorrhages, the toxicity of novocaine, or any other local anesthetic, is increased, and they should be used in small amounts or in a weak solution with large doses of adrenalin.

In individuals with low blood-pressure or where shock is imminent, paravertebral and spinal anesthesia are dangerous because of their lowering effect upon blood-pressure.

In acute abdominal conditions where pus is present a light narcosis should accompany the local before packing off the rest of the abdominal cavity, as inserting and removing the packs usually cause considerable distress.

In conditions of the abdomen where there are many old extensive adhesions to be separated, local anesthesia should be supplemented.

In extremely neurotic women local anesthesia frequently fails, even though a large dose of scopolamine and morphine has been given previously.

In very small children, where a hypodermic injection of a narcotic is contraindicated, local anesthesia for major work is not usually successful.

Breast amputations are best not done under local anesthesia unless there are contraindications to a general anesthetic because of the extensiveness of the injections necessary. In this operation it is necessary to make a brachial injection, several intercostal injections, and then infiltrate completely around the area to be excised.

Spinal anesthesia should be confined to operations in connection with the lower segments of the spine and should never be used for operations at higher levels.

Braun says local anesthesia is somewhat limited by the slight toxicity of all the drugs used for that purpose.

In operations of the skull and the brain,

the best results are obtained by the combination of local anesthesia and a mild narcosis.

In very long operations the effect is liable to wear off before the completion of the operation and should then be supplemented with a general anesthetic.

Among the dangers of local anesthesia may be cited intravenous injection, in which shock symptoms can appear with surprising promptness. It is best, therefore, always to aspirate before injecting, and if blood appears the point of the needle should be moved. Injection into a phrenic or pneumogastric nerve is not as dangerous as was formerly thought. It has been proven experimentally on animals that one phrenic or pneumogastric nerve may even be severed without serious results.

We are limited in the use of local anesthesia by the patient's lack of confidence in anything but the old general anesthesia, under which the patient knows there will be no pain. Indeed, in private practice, it is frequently impossible to get the consent of the patient to the use of local anesthesia. But in city, county and State institutions where that consent is not particularly sought, patients who have been operated on under both usually say they prefer the local.

Then, again, we are very much limited in our use of a local anesthetic by lack of proper equipment, generally speaking, by our lack of experience in this line, and by our lack of knowledge of the exact location of nerves and where they are most readily accessible.

Maternal Mortality of Child-bearing: Its Causes and How to Deal with Them.

Under this caption EDEN *(Lancet,* November 11, 1922) notes in the year 1920, 5413 women, six out of every seven of whom were under thirty-five years of age, died in the United Kingdom from causes incidental to child-bearing. A good deal of this loss of life cannot be avoided, nevertheless it is an incontestable fact that large numbers of women who enter upon the process of labor in good general health, and free from obstetric complications, lose their lives. A special responsibility for this particular form of mortality is usually laid at the door of the medical profession.

A good deal of attention has been directed from time to time to the fact that the mortality-rate from sepsis in childbirth has shown no noteworthy diminution in the last twenty years, although during the same period great progress has been made in the elimination of septic complication from all branches of surgical work. The facts are undeniable. The most recent tendency of the mortality-rate from sepsis in childbirth is to rise, rather than to fall.

In England and Wales over one-half of the total births were notified as having been attended by midwives during 1918 to 1919, the exact figures being 51.8 per cent in 1918 and 54.5 per cent in 1919. The returns for 1920 are incomplete, but the proportion was apparently a little higher than in 1919. The influence of the practice of midwives upon the maternal mortality of childbirth is therefore important; but we cannot tell to what extent the proportion of cases attended by midwives increased during the war, although there is a general tendency for the proportion to rise during the period for which figures are available. On the whole the general tendency of the total mortality-rate, considering the difficulties of the period under review, is not unsatisfactory, until the last two years (1919 and 1920) are reached. These two years showed a very decided rise in the death-rate, which reached its maximum in Ireland. Both in England and Wales and in Ireland the year 1920 gave the highest rate for the whole period; the Scottish rate did not quite reach the abnormally high point shown in 1911. It is certainly disquieting that this rise in the total mortality of childbirth should coincide with the emergence of the country from the difficulties of the war period, and the restoration of our medical services to prewar conditions.

The deaths which occur during or subsequent to parturition may be divided into two great groups: (*a*) Deaths due to hemor-

rhage or to "accidents" of labor; (*b*) deaths due to sepsis. All deaths may be conveniently comprised under these headings. The hemorrhages include the antepartum, postpartum, and puerperal varieties. The "accidents" include rupture of the uterus or vagina, and deaths after instrumental or operative delivery; "sepsis" includes all varieties of infection—uterine, peritoneal, venous, and mammary. In order to give some idea of the kind of cases which are included under "accidents of parturition," the following list of certified deaths is quoted from the Registrar-General's Report for England-Wales, 1920: Contracted pelvis, 62; rupture or laceration of the uterus, vagina, or bladder, 51; difficult and prolonged labor, 55; Cæsarean section, 37; malpresentation, 24; instrumental delivery, 11.

The rise in the last two years is, in point of fact, due entirely to the death-rate from sepsis.

The rise in the mortality from sepsis occurred in a period of full employment and great industrial prosperity; all medical services were restored to their prewar conditions. The year 1920 was extraordinarily prolific in this country; there was, therefore, more midwifery work to be done, but doctors were there to do it. In England and Wales 2087, in Scotland 295, and in Ireland 250 died of puerperal sepsis in that year. For this appalling loss of life we as doctors must accept our share of responsibility.

We owe three duties to every expectant mother who entrusts herself to our care: they are (1) frequent and regular examination of the urine; (2) a detailed obstetric examination of every primigravida in the early months; and (3) a detailed obstetric examination of every case in the last fortnight of pregnancy, primigravida and multigravida alike.

An immediate and deep impression upon the incidence of eclampsia would result from the universal observance of the first-named duty. An elaborate antiseptic technique is not required in the conduct of ordinary labor.

The bacteriology of puerperal sepsis has by no means been worked out completely, but there is general agreement that streptococci are present either as a pure infection or in association with other bacteria, in from 70 to 80 per cent of all cases. Bacteria of the B. coli group come next in frequency, but a long way behind the streptococci. Now there is good reason to believe that streptococci are to be found before labor in the vagina, and less often in the cervix, in about 20 per cent of apparently healthy pregnant women. In many instances they are probably saprophytic, but even so these subjects must be regarded as potential carriers of the very organisms which we desire to exclude. The parturient woman may be on the verge of danger from the organisms which she is carrying in her own genital passages, apart altogether from the possibility of infection from without. Under normal conditions the uterine cavity is sterile during pregnancy and labor. Gradual progressive invasion of the puerperal uterus from the vagina appears to take place normally in the early puerperium, and to be without ill-effect so long as it pursues its natural course. A recent research in which the bacterial flora of the uterine lochia were examined in 56 cases of normal afebrile puerperium showed that all contained bacteria from the second day onward. It is the untimely access of bacteria to the uterus—before it is ready to deal with them, so to speak—which is the cause of puerperal sepsis. Implantation in a more favorable environment may change bacteria of low virulence into formidable active organisms. Digital examination of the presenting part while it is in the uterus, and all forms of instrumentation of the uterus, may infect the uterine cavity with vaginal organisms or others introduced from without, and thus become the immediate cause of sepsis. Venereal discharges when present are, of course, a potent source of infection.

Autoinfection, either venereal or non-venereal, is an undoubted possibility, but it is easy to exaggerate its importance as a

practical risk. The great majority of cases of puerperal sepsis are probably brought about by the introduction of fresh bacteria from without into the uterine cavity; when the uterine cavity is infected the placental site, with its large vessels, plugged only by blood clot, and its numerous small vessels which remain open, offers the most favorable opportunity for spread of the infection.

Two things only are actually required to prevent the access of these bacteria to the parturient uterus: (*a*) that the occasions on which the finger or an instrument is introduced into the canal should be limited to the irreducible minimum, and (*b*) that the vulvovaginal canal and the finger or instrument of the attendant should be surgically clean. Most cases of normal labor can be put through without vaginal examination during labor, a surer method of avoiding infection than the most elaborate antiseptic technique. If a complete obstetric examination has been previously made the presence of a medical attendant during the first stage of labor is unnecessary so long as it runs a normal course—*i. e.*, so long as the pains show their normal intermissions. If the pains are normal a trained nurse is the only attendant required; and the public must learn to recognize that the continuous presence of the doctor is unnecessary if he has satisfied himself by recent examination that the general condition of the patient is satisfactory, that the pelvis is of normal size, and that the presentation is a vertex. The nurse should, of course, under no circumstances be allowed to make a vaginal examination in the absence of the doctor.

To insure the doctor's presence at the time of the birth, if he does not watch the rate at which the cervix dilates, is easy in the case of a primipara; he need not be there until the expulsive pains characteristic of the second stage begin, and this will be recognized by the trained nurse; in the case of the multipara let the nurse time the first-stage pains, and when they come oftener than every five minutes the doctor should be there. Further, with practice the progressive descent of the head can be followed by abdominal examination; detention of the head above the brim can be very readily recognized in this way. These rules will lead to no more mistakes than may occur if the size of the cervix is relied upon, because the rate at which the cervix dilates is not regular throughout the first stage, and while many hours may be spent before it is one-third dilated the remaining stages may be very rapidly got over. Prolongation of the first stage of labor, when the local conditions are normal, is due to primary inertia—nearly always the result of nervous apprehension on the part of the patient—and characterized by pains either feeble and irregular, or very frequent, even continuous, severe, but ineffective. As long as these conditions continue little progress can be made, and therefore frequent vaginal examinations yield no information; on the other hand, they increase the mental distress of the patient and raise the suspicion in her mind that all is not going well. The treatment is to give her gr. ¼ of morphine hypodermically, and leave her alone with the nurse for three to four hours. This is sufficient in most cases to alter the character of the pains, making them more regular and efficient, with normal intermissions and consequently normal progress of the process of dilatation. Some few cases may require the whole procedure known popularly as "twilight sleep," but these are very few. In all protracted cases the fetal heart sounds must, of course, be carefully watched.

Under normal conditions, then, it is not necessary to make a vaginal examination until the patient is having expulsive pains, and usually the waters will have broken also. Consequently antiseptic technique resolves itself into that which is required for normal delivery.

The first requisite is a proper supply of clean sheets and towels, and in the case of patients too poor to provide them, the voluntary health societies or the local authorities ought to come to their aid and provide an outfit for the occasion. The

alternative method of dealing with the very poor is to take them all into hospital; the necessary accommodation in hospital does not, however, exist, and to provide it at the present time would be an intolerable burden to the State, or in other words to the taxpayers. The second requisite is a trained nurse; no doctor should be asked to attend a confinement single-handed, for it wastes his time and is incompatible with proper supervision of the labor and the lying-in. There are now in most places district maternity nurses whose services are available for patients who can afford only the doctor's fee.

Three principles upon which the conduct of labor should be based are: (1) Careful examination of the patient before labor; (2) a simple antiseptic technique; and (3) avoidance of vaginal examination until expulsive pains occur. We may now add (4) great restraint in resorting to operative delivery.

Let me state the contraindications to the use of pituitrin in labor as follows: First, pituitrin must under no circumstances be used until the cervix is fully dilated, either in a primipara or a multipara. Secondly, in a primipara it should not be used until the head has descended upon the perineum and is visible when the labia are separated during a pain. Thirdly, it should not be used in any case if the occiput lies to the back instead of the front.

The third stage of labor puts the severest strain of all upon the patience and restraint of the obstetrician; yet his clear duty is to wait, and while watching the uterus, with the patient on her back, to leave it alone until the placenta has been detached. The signs of detachment are readily learned, and when they appear the after-birth can be safely delivered by expression. The only exception to this rule is when the patient is losing an abnormally large amount; then the sooner the placenta is delivered the better. Postpartum hemorrhage is responsible for more deaths in labor than any other single condition, yet its occurrence can be avoided with practical certainty by the observance of these rules, except in cases of severe laceration when the hemorrhage does not come from the placental site at all.

No amount of careful supervision can guard against the occurrence of antepartum hemorrhage, which nearly always takes the form of a recurrence of hemorrhages separated by intervals of days or weeks, the initial attack of bleeding being rarely sufficient to endanger life. Both varieties of antepartum hemorrhage are attended by a fetal mortality of 60 to 70 per cent, but placenta prævia is much the more dangerous variety to the mother, and diagnosis becomes, therefore, a point of some importance. Accidental hemorrhage is usually a toxic condition, accompanied by albuminuria; the absence of albuminuria in a case of antepartum hemorrhage suggests that it is due to placenta prævia. Further, the presence of the placenta in the lower uterine segment prevents the descent of the presenting part to its usual level. If the presenting part is unusually high and therefore unusually movable, and if the urine is free from albumin, the case is in all probability one of placenta prævia. It is impossible at the first hemorrhage to estimate the gravity of a case of placenta prævia; each succeeding hemorrhage is likely to be greater than the last, until during labor furious bleeding, very difficult to control, may supervene. Every case of placenta prævia, after the first hemorrhage, should be sent to hospital, or should be placed in a nursing home, or in other conditions where all means of assistance can be instantly available.

Cæsarean section should be performed, or labor induced, according to the circumstances of the case, after the first hemorrhage. In 1920 there were 253 deaths registered from placenta prævia in England and Wales alone. To conduct a labor complicated by antepartum hemorrhage under the makeshift conditions of the ordinary middle-class home, or, still worse, in the insanitary environment of the homes of the poor, is asking for most serious trouble.

Rupture of the uterus during labor is the gravest accident which can occur; being in

almost all cases avoidable, it involves a special responsibility. The conditions which render its occurrence likely are mostly recognizable by examination before labor, such as the higher degrees of pelvic extraction, the presence of a tumor or an ovarian cyst in the pelvis, and gross malpresentation—*e.g.*, the transverse lie. Forewarned by the existence of these predisposing conditions we can take the appropriate measures in time; otherwise disaster is pretty sure to follow. Many cases of rupture are caused by the untimely and unskilled performance of such operations as version or forceps extraction.

In this relation Greenhill's article in *Surgery, Gynecology and Obstetrics* for November, 1922, on the maternal deaths among 10,000 women in the Chicago Lying-in Hospital, is of interest. The observations run from 1914-21. In all there were 39 deaths, a rate which compares favorably with that obtaining in civil practice. The hospital is an open one and over 300 different doctors send their patients there. Of the 39 patients who died, eight were delivered in their homes before having been sent to the hospital. Of the 31 fatal cases delivered in the hospital six had been examined vaginally by physicians or midwives. Seven of the fatal cases followed Cæsarean section, two abdominal hysterectomy, 12 application of forceps. Six of the deaths were due to peritonitis.

Influence of Lead Compounds on Cancerous Cell Growth.

Bell *(Lancet,* November 11, 1922), after seven years of research and clinical experience based on fifty cases, observed from November 9, 1920, to August 9, 1922, concludes his article as follows:

Lead enters into combination, probably chemical, with lecithin. Lead affects those normal tissues of the body in which lecithin or similar lipins are present in greatest quantity. Malignant neoplasms contain lecithin in direct proportion to their rate of growth (Bullock and Cramer). Intravenous injections of a colloidal preparation of lead, while not without danger, with experience, can be so regulated that little or no disturbance is caused. After previous intravenous injection of a colloidal preparation lead can be recovered from the malignant growth in a quantity proportionately greater than that contained in the rest of the body.

Lead in suitable doses appears in nearly all cases to arrest the growth of malignant tumors. In some cases treatment with this metal may result in disappearance of the neoplasm, possibly by the action of the normal tissues on arrested cell developments. The probability of this appears to depend on the vascularity of the parts. At the same time there is improvement in the general condition.

It is desirable when possible that the bulk of the growth be removed, and that this procedure be followed immediately by the injections while there is increased blood-supply to the part concerned.

Previous intravenous injections of a colloidal preparation of lead seem to increase the beneficial effect of *x*-rays, owing to the promotion of secondary radiation.

It is possible that prophylactic treatment after complete removal may be of considerable importance with regard to the prevention of recurrence.

This investigation, although much time and labor have been given to it for more than three years, and although the results obtained are very suggestive, must be regarded as still in an experimental stage.

The author observes that much attention has been devoted to the formulation of colloidal preparations of lead suitable for intravenous injection. This has proved a difficult and complicated problem. Fifty-five variations have been made. The author is unwilling to state in his present paper the exact nature of the materials employed.

An editorial in the same number of the *Lancet* comments upon Bell's paper as follows: "It is not possible to arrive at any other conclusion than that Professor Blair Bell has opened up a line of attack that de-

serves to be prosecuted. The modern theory of cell intoxication is that particular orders of cells exhibit a selective affinity for, and absorb, particular molecules, and that, whether by absorption or by chemical union, the presence of certain exogenous molecules arrests the normal metabolism of these cells and so brings about their disintegration. In this way we explain the action of narcotics such as ether and chloroform taken up by tissues and cells rich in fats and lipoids, and the destruction of spirochetes by salvarsan and other arsenic compounds. It is a distinct step forward to attempt to bring about the death of cancer cells by this means. It is possible that future investigation will reveal some agent more specific than is lead. But all will recognize the logical sequence of Professor Blair Bell's investigations.

"The most striking example of physiological malignancy in the human body is to be seen in the invasion and destruction of the maternal uterine tissues by the chorionic epithelium of the fetus. Studying the induction of abortion in the lower animals he found that the well-known abortifacient, lead, has a definite action upon the chorionic epithelium. Accordingly he applies this knowledge to cases of pathological malignancy. Those other lines of attack which since the beginning of the century have met with success, even if this be but partial, are each of them based upon the same principle of bringing about the arrest of growth and the subsequent disintegration of the tumor cells. In the action of radium, *x*-rays, and diathermy, what is sought is the destruction of the growth by physical means. The defect of all three methods is that they can only be applied locally. Prof. Blair Bell overcomes this defect by introducing intravenously a chemical substance capable of arresting the growth of tissues in a state of active proliferation. Given intravenously it reaches the metastases equally with the primary growth. That his argument has a sound basis is, according to him, demonstrated by the fact that tumor masses removed after treatment are found to contain the substance, lead, in notable amounts. Granting this, it will be admitted that the action of lead is far from being specific. It is well known that introduced into the human body it is specially liable to affect the nervous system, the red corpuscles, the vessels, and the essential organs of generation. The problem, therefore, was not unlike that which confronted Ehrlich in the matter of arsenical preparations—a problem of *therapia magna sterilisans*—namely, of discovering what preparation of lead would convey the metal into the system in the largest amounts with the least injury to the tissues other than those composing the malignant growths. He now announces that colloidal lead fulfils the conditions, but evidently is still undecided as to which menstruum for its conveyance into the venous system is to be recommended."

The Surgery of Vater's Papilla.

BRENNAN *(Surgery, Gynecology and Obstetrics,* November, 1922) abstracts from Tenani's contribution to the *Policlin.*, Rome, 1922, sez. chir., 291, the case of a soldier from whom was removed a tumor of the papilla of Vater. The condition was at first diagnosed as occlusion of the common duct, but exploration showed the presence of a duodenal tumor obstructing the mouth of the pancreatic duct; nodules could be palpated also in the vicinity of the head of the pancreas. The surface of the tumor was somewhat ulcerous. A posterior gastroenterostomy and a choledochoenterostomy were done as preliminary operations, and followed at the end of a month by a radical duodenopancreatectomy by the technique of Kausch. Such an operation has been previously done only by Koerte and Kausch. Koerte's patient died thirteen days later from loosening of the sutures. Kausch's patient lived twenty-four months after the first operation, but then developed icterus, was reoperated upon, and died.

In Tenani's case the result has been completely successful. The patient is alive and well three years after the operation. Histologic examination of the tumor showed it

to be a cylindrical-celled and calciform epithelioma.

Vaterian tumors may be classified into three groups according to whether they arise from: (1) the termination of the common duct; (2) the termination of the duct of Wirsung; or (3) the ampulla itself. Such tumors are very rare. Of 3218 carcinomata found by Ferrari in 44,278 necropsies, only nine were in the papilla, and in 2000 operations on the biliary passages Kehr found only three such tumors.

The operative treatment applied has been either: (1) simple papillectomy; (2) papillectomy combined with duodenal excision; or (3) duodenal resection and removal of the head of the pancreas. In a review of cases of these operations reported in the literature the author found that in fourteen cases of papillectomy there were seven operative deaths; the result in two cases is unknown; the tumor recurred after one or two years in two cases; two patients were cured for more than six years; and another was cured but followed for only four months. In eleven cases of papillectomy with duodenal resection there were four operative deaths, four recurrences, two recoveries maintained for two or more years, and one doubtful recovery. Therefore these two methods were followed by eleven operative deaths and only four lasting recoveries.

The author therefore believes that a more radical method is necessary, a method removing the glands tributary to the ampulla to reduce the chances of recurrence. Such a radical method is duodenopancreatectomy according to the technique of Sauve, Kausch, or Desjardins. Tenani prefers Kausch's technique, which was that followed with success in his own case (the third operated upon on record).

The most difficult part of partial pancreatectomy is the treatment of the stump and the reëstablishment of the course of the pancreatic secretion. The best solution of this problem is pancreatoenterostomy. Ligation of the duct and its separate implantation in the intestine has been proved impractical by experiments. The outlet of the pancreas into the intestine should be protected with a strip of peritoneum. The possibility of obtaining a good functional result from grafting the resected pancreatic stump into the intestine was demonstrated by the cases of Kausch and that of the author. Although Kausch's patient died of biliary obstruction twenty-three months after the primary operation, the autopsy disclosed no evidence whatever of carcinomatous recurrence.

Tunneling of the Prostate.

An exhaustive review is given of certain papers read by CATHELIN and LUYS and discussed by a number of genito-urinary surgeons *(Urologic and Cutaneous Review,* Vol. XXVI, No. 10). Cathelin terms the method a myth and apparently utterly rejects it. Among his reasons for calling it a myth are that he has been compelled to operate on patients subjected to this procedure and has been unable to detect any scar tissue.

Luys, in answering Cathelin's criticisms, stated that in the beginning of the introduction of his treatment, he (Luys) used only the electric cautery, which has two disadvantages: the first is that it provokes hemorrhage which is sometimes serious, and the second is that it is not efficacious. The galvanocautery, even when white red-hot, at most goes through the capsule of the adenoma, which is as hard as rubber in prostatic adenomata.

At the present time he uses only electric coagulation, which is applied dry, and in the potency of 400 or 500 milliamperes has a strength which nothing can resist. With this procedure, hemorrhage may be avoided.

The cicatrices left after the coming away of the scars caused by the action of electric coagulation are all very supple.

It is precisely on account of the perfect suppleness of the scar that it is possible to cause the disappearance of minute adenomata, the size of hemp-seed, beneath the mucosa. This could not be accomplished if

the scars were hard and fibrous. Minute adenomata of this kind escape the action of electrocoagulation at the first application because of the deep location. It suffices to make a few supplementary applications after the primary forage to obtain perfect results.

An instrument with the destructive power of the electrode of electrocoagulation destroys immediately everything with which it comes in contact, as deeply and extensively as may be desired. This is evidence enough.

Moreover, in order to give a demonstration admitting of no discussion, it suffices to show the pieces of prostate thrown off after every application of the electrocoagulation. These fragments have been often examined by Mr. Mautè histologically.

The precise definition of the action of forage of the prostate is as follows: While prostatectomy is directed at the prostate as a "mass," forage is directed at the prostate as an "obstacle," and this definition is based upon two main facts which are well known to-day:

In the first place, always and every time it is impossible to establish a relation between the size of the prostate, no matter how large this may be, and the amount of retention in the bladder. There are cases of enormous prostates in which the amount of retained urine is only a few cubic centimeters, and on the other hand there are cases in which the prostate is small but the residual urine in the bladder amounts to 300 or 600 grammes.

Consequently, we should take into consideration the prostatic obstruction and not the prostatic mass when we aim to assist urination.

Does the general surgeon remove the whole breast when he operates for a small adenoma?

Those who have devoted the most study to the pathological histology of the prostate are the first to give support to Luys's views.

MM. Papin and Verliac thus express themselves:

Finally, by reason of the location of the glands, it would seem possible to treat hypertrophy in the beginning by the endourethral route, provided one can make a diagnosis sufficiently promptly.

But there are three stages to be recognized in the development of adenoma of the prostate.

The first stage begins by the invasion of the submucous, median glands of the prostate. In this stage the urethroscope alone determines the elongation of the prostatic urethra anteroposteriorly.

In the second stage the elongation of the urethra is increased until it reaches the neck of the bladder, which becomes deformed.

It is in these first two cases that the forage of the prostate is formally indicated.

In the third stage, finally, the adenoma has progressed until it lies behind and around the neck of the bladder. It has become vesical and demands the suprapubic operation.

Extensive research by Luys has shown him the obstacles to urination which may be encountered in the prostatic urethra. Against these obstacles forage is directed.

Quite often the prostatic canal is not straight. Often there is an elevation at the neck of the bladder, sometimes it is depressed, sometimes it deviates toward the right or toward the left.

Forage goes directly to its goal, and evens out all of these pathological deviations. It enables one to give to the patient an absolutely straight canal; not only do catheters readily pass, but the patient is able to void his urine and empty the bladder.

It is against the irregularities in the hypertrophied prostate that forage of the prostate is directed; to transform a deviated canal into a straight canal is the chief object of forage of the prostate.

This is not to be compared with the havoc wrought by the Bottini operation, which was performed in a blind, dangerous manner. This is the response made to those who have examined the tissues removed in the Bottini operation, and the deep trench made by the cautery, and who are conse-

quently surprised not to find any scars in the prostate after forage of the prostate. Forage of the prostate is not the Bottini operation.

This is the scientific principle upon which competent authorities on the subject base their opinion.

As to the persistence of the median lobe after forage, two hypotheses present themselves: In the first place there are cases in which the destruction of the median lobe is entirely unnecessary. In fact, in the suprapubic operation one notes the median lobe in place, and one is surprised to find that the median lobe very rarely interferes with micturition, for it is often possible to insert one or even two fingers into the bladder in cases of adenoma of the prostate, and that one can readily shove the median lobe to one side. Now in the cases in which the median lobe does not interfere with micturition, there is no need to attack it by means of forage.

If, on the contrary, this lobe interferes with micturition, it is easy to destroy it completely, for nothing can resist 400 milliamperes of electrocoagulation. To destroy it or not to destroy it, then, is a matter of diagnosis and good judgment.

The prostatic ridges, more or less extensive, if they form obstruction to the flow of urine, may be destroyed in the same way.

In every event there is one fact which dominates all the discussion of the matter indisputably on account of its practical value, and that is this, that patients who urinate with difficulty or not at all before operation pass their urine without difficulty and empty their bladders after forage.

Finally Luys, in conclusion, presented a patient who was operated upon by forage a year before.

This patient, who was sixty-eight years old, came for treatment in September of the previous year. He suffered with great difficulty of urination and a large vesical residue varying from 450 to 700 grammes.

When Luys examined the patient in September, 1920, he had small calculi in the bladder, which had numerous diverticula.

Luys began by removing the small calculi by means of pincers, using a cystoscope of direct vision. All of them were readily seen and removed.

Having done this, Luys addressed his efforts to the removal of the prostatic bar, which was very prominent. Was this bar merely the bar of Mercier, or was it the median lobe? This is of minor importance, whichever it was; the thing of importance is that it was destroyed.

It required 450 milliamperes to destroy this barrier. It must be noted as a complication in this case that after the second forage there was a serious hemorrhage, which was stopped by a catheter left in place.

Every time after each sitting the patient discharged scar tissue from the sixth to the tenth day after the forage.

At present he has only 10 or 15 cc residual urine. No one can deny that this patient was greatly benefited by forage of the prostate.

To conclude, clinically and scientifically the action of forage of the prostate is fully demonstrated. Everything confirms the reviewer's convictions.

Cathelin in answering Luys closed his remarks with the statement that he (Luys) should not talk about his method, for he has none. "I regret to state, nothing is left him, neither a new method, a new procedure, not even a new technic, only a name, this unlucky name 'forage,' or freshening, or boring the prostate."

Victor Pauchet personally was of the opinion that forage might render service under two circumstances: (*a*) In those cases with small prostates with a subcervical bar, for in such cases the small, limited lesions are out of proportion to a more serious intervention. (*b*) In those with small or median sized prostates but with great renal insufficinecy, where serious operation would appear to be dangerous.

Pauchet had Luys operate for him in two cases of this kind with excellent results as far as the restoration of function was concerned. On the other hand Luys had

operated for him in the case of a large prostate without result, and Luys himself advised prostatectomy. The prostate showed no trace of the boring through it, which is comprehensible since Keating Hart himself says that electrocoagulation leaves no cicatrix.

In the treatment of adenoma of the prostate each case presents its own indications for treatment. Some cases are adapted to some suprapubic prostatectomy, some to median perineal prostatectomy, some to lateral ischiorectal, others to forage.

Each of these operations has its indications. The surgeon is wrong who adopts one operation to the exclusion of all others.

The question is not one of deciding between prostatectomy and forage, which would imply that we are considering the indications for forage. The question is simpler than this; it is merely whether forage does in fact bore through the prostate, whether the name corresponds to the results, if there is a groove, or perforation, if one levels all the pathological projections, if one transforms a crooked canal into a straight canal, or whether, on the contrary, it is a matter of cauterization more or less marked, more or less extensive. If the latter is the case it would be making much ado about nothing, and using a big word for a petty thing.

Before he could accept a true forage, Pasteau demanded to see it in the specimens removed afterwards by operation. Since Luys had not shown him this he did not believe that the action of forage of the prostate is completely demonstrated as claimed by Luys.

Luys claimed that it is possible to destroy large masses of tissue with electrocoagulation, but this is no longer the question.

It is certainly true that one can obtain marvelous results with electricity, but it is doubtful whether it is possible to destroy at the end of the long tube of the urethroscope a lobe of the prostate by means of a small metallic electrode, and to practice not only small cauterizations, but true destruction of the median lobe and of the prostatic bars, and Luys claims: "If the median lobe constitutes the obstruction of urination, it is easy to destroy it completely." This is precisely what Pasteau cannot admit until the pieces are shown him.

This method of boring through the prostate is not without its complications. Not much is said about them, but it is certain that there are hemorrhages and infection. These operative complications, postoperative accidents, actually exist, since, in his reply to Levenant, Luys speaks of postoperative hemorrhages which he treats with a catheter left in place. Also he speaks of urine clear before operation, and which quickly became cloudy and infected after operation. It would not be otherwise with these manipulations of hypertrophied prostates after the scars are eliminated.

If then the method is accompanied by these incidents or accidents, dare we use it unhesitatingly?

We are told we may because the advantages gained outweigh the complications. Forage should be done on account of the results obtained with it. It is an indisputable fact, says Luys, trampling all considerations under foot, that patients who before operation urinate with difficulty or not at all, afterwards urinate perfectly and empty their bladders.

This argument is without great value for this reason: While such results as Luys obtains are possible, and he reports seventy-five cases, they do not convince us, for there is no urologist who is not able to report many more cases in which without prostatectomy and without forage the same amelioration has been brought about by dilatation, simple passage of a catheter, cold-water application, or by no treatment at all in prostatics who have retention, and who urinate again and empty their bladder during five or ten years.

In view of these many cases what estimate should be placed upon forage or endoprostatic cauterization?

In truth, to the contrary of what Luys

says, the action of forage of the prostate is not proven entirely, either clinically or scientifically.

Cathelin's conclusions are short and sharp: Until more ample information is afforded, and until anatomical evidence is brought, even the very existence of forage of the prostate by Luys's method is not proved.

The method consists merely of cauterization, which may have more or less serious consequences, the therapeutic value of which remains for many urologists very much a matter of doubt.

To sum up the matter, the indications for operations upon the prostate through the urethral route are exceptional. In common hypertrophy these operations cannot be done with the purpose of a radical cure. Personally, Minet prefers transvesical prostatectomy, a rapid, sure and aseptic operation, reserving diathermy through the natural passages for small lesions with benign symptoms or for the cicatrices of the neck of the bladder following operation.

In closing the discussion Georges Luys appealed to the authority of Pauchet, who had seen some of Luys's cases and testified to the cures obtained.

Moreover, many electrotherapeutic specialists have borne evidence to the fact that the scars after electrocoagulation leave no trace; that they are totally invisible. It is much more reasonable to put faith in those who are qualified to speak than in the assertions of those who have never practiced the operation.

M. Pasteau knows the cicatrices are invisible and the reasons why.

M. Pasteau says he cannot believe in real forage without having seen its effects upon the tissues removed.

The proof is very easy to bring. If he will take one of the electrodes of Luys and apply it to an adenomatous prostate, and pass through it a current of 500 milliamperes, he will see large and deep destruction. Since he will see before his eyes the electrode sink itself deeply into the prostatic adenoma, he will then perhaps comprehend that the term forage is justifiable.

He will also thus comprehend that if the term "forage of the prostate," is new it is because it is new, and differs from all which have been practiced till now in very special respects.

This discussion resolves itself into the following points, according to Luys:

Forage of the prostate is not a rival of prostatectomy. The two operations complement each other, each having its indications.

Forage is applicable to all determined cases in which there is an obstacle of such nature as to be relieved by it, and enable the patient to urinate.

While forage is not a rival of prostatectomy, it is a rival of similar methods, among which is Young's "punch operation," and no one can claim that Young seeks to avoid prostatectomy, for he has done more prostatectomies than any one else.

Young then has recognized that in a number of cases prostatectomy is not needed to relieve the cause of retention, and for this reason he has invented this practical intervention.

In closing Luys said that forage of the prostate is the perfected method of all attempts so far made, and its results show this.

Sprains of the Rhomboideus Minor Muscle.

Replogle *(Annals of Surgery,* November, 1922), basing his study on 150 injuries of the shoulder girdle, observes that 25 per cent of these are sprains, and that sprain of the rhomboideus minor muscle is more frequent than any other traumatic lesion of the shoulder. It occurs usually in those performing heavy or strenuous labor such as swinging a sledge, firing a furnace, or the sudden lifting of a heavy weight. At the time of the sprain he feels a sudden knife-like, sticking, or stabbing pain just median to the base of the spine of the scapula. Occasionally he tells us it

felt as though he pulled a leader. Pain bothers him for fifteen to twenty minutes, but he usually resumes work and finishes out the day. That night he notices aching between the shoulder-blades, and disability begins the following day, when pain and aching accompany use of his arm.

An examination reveals a very definitely localized point of tenderness about the size of a quarter just internal to the base of the spine of the scapula. He can abduct his arm to about 90°, at which point he suddenly feels aching pain referred to the point of tenderness. Further elevation of the arm aggravates the pain, which is worse when the arm is fully abducted and passed anteriorly over the chest so the hand rests upon the opposite shoulder with the elbow at height of the brow. Aching between the shoulder-blades at night is a common symptom. With the head rotated to the side of the injury, if we tilt it on its axis to the opposite side he will complain of pain referred to his point of tenderness. Standing with the body erect and shoulders thrown back is the most comfortable position for him.

Examining into the causes of the injury, such as swinging a sledge, firing a furnace, lifting a heavy object, sudden pulling upon objects with arms extended, we find that pain occurs at the end of a pitch of a shovel, or at the end of the swing of a sledge; in other words, at the position where the lateral angle of the scapula is raised and the rhomboideus minor is on the greatest tension.

Clinically pain is produced only on those movements which elevate the lateral angle of the scapula, change the angle of the spine, and depress the base of the spine of the scapula, producing tension on rhomboid muscles.

Occasionally we find slight pain and tenderness near the spinous process of the last cervical vertebra at the origin of the rhomboideus minor, and in 30 per cent of the cases there was slight tenderness along the vertebral border of the scapula below the spine in the region of the rhomboideus major.

We would deduce, then, that any muscular movement producing elevation of the lateral angle of the scapula, especially when occurring suddenly, overstretches the interscapular muscles and gives potential etiology for sprain of the rhomboideus minor.

The treatment is based on anatomic lines to cause relaxation of the overstretched muscle. The shoulders are thrown back so as to lessen the interscapular space, and criss-cross adhesive straps are applied maintaining this position. The arm is put in a sling and a small pad placed under the adhesive over the point of tenderness to possibly hasten the absorption of the serous effusion at the point of rupture or strain.

The above treatment gives immediate relief from aching, and pain on abduction is greatly reduced. The writer has several times removed the cross strapping too early and patients have requested its reapplication to obtain relief.

Because of the frequency of occurrence of sprain of the rhomboideus minor, the unusual constant symptomatology and clinical picture, the efficacy of simple and proper treatment, together with the fact that it is of sufficient seriousness to cause industrial disability, justify a description and demand cautiousness for diagnosis of this lesion.

The Use of Large Reverdin Grafts in the Healing of Chronic Osteomyelitis.

Reid (*Johns Hopkins Hospital Bulletin*, November, 1922) gives the following technique of skin grafting:

The bone cavity is treated with Dakin's solution until it becomes lined with clean, firm granulations. Without the use of Dakin's or some other antiseptic solution the granulation tissue becomes edematous or "seaweedy," and forms an unhealthy base for the growth of grafts. Two hours

after the last irrigation with Dakin's solution, large, thick pinch-grafts, half a centimeter in diameter, are placed closely together upon the surface of the cavity. The grafted wound is then exposed to the air for from six to eight hours. This short drying period serves to fix the grafts firmly to the granulation tissue. The grafts are then covered and held in place with a single layer of gauze which is firmly secured to the normal skin so that the moistening and changing of saline compresses during the next two days will not displace the grafts. After two days the grafts have taken, and the use of Dakin's solution instead of salt solution is begun. This is applied by laying wet compresses directly against the wound (the thin layer of protecting gauze having been removed) every two hours during the day and every four hours at night. After about five days the Dakin's solution is discontinued and the wound is dressed with rubber "protective" or old linen. Invariably the grafts grow quickly and cover the granulation tissue with epithelium in from ten days to two weeks. Should the granulations become high (usually from the edema of infection) caustics should not be used; Dakin's solution reapplied for one or two days will reduce the swollen granulations to the level of the grafts, and will not injure the growth of new skin.

The cure of chronic osteomyelitis when the disease is confined to the shaft of a long bone is usually not difficult, for the surgeon can frequently remove bone enough to prevent the formation of a cavity, or else to permit soft tissues to fall readily into a shallow cavity. But in the ends of long bones, particularly the upper end of the femur, the successful treatment of a bone cavity is made difficult by the presence of the joint, which limits the amount of bone that may be chiseled away. In such locations the surgeon has always to face the problem of dealing with a deep cavity, and it is in such cases that we have for the past four years made use of pinch-grafts.

Reviews

TEXT-BOOK ON PEDIATRICS. Edited by Professor E. Feer, Director of the University Children's Clinic, Zurich. Translated and edited by Julius Parker Sedgewick, B.S., M.D., Professor of Pediatrics, University of Minnesota, Medical School, and Carl Ahrendt Scherer, M.D., F.A.C.P. 917 pages and 262 illustrations, first edition in English. J. B. Lippincott Company, Philadelphia, 1922.

The original edition of this book was written by the leading pediatrists in Germany—Feer, Finkelstein, Ibrahim, Meyer, Moro, Noeggerath, Thiemich, V. Pfaundler, and V. Pirquet. Owing to its popularity among those who studied on the Continent, Sedgewick and Scherer undertook its translation into English and associated with them a very able corps of collaborators who have added to the original text. One of the advantages of the book is its conciseness, which enables the whole subject of pediatrics to be covered in one volume. The section on general considerations — anatomy and physiology, pathogenesis, prophylaxis, etc.—is particularly timely and serves as a useful introduction to the study of the sick child. The most noteworthy sections are those on the pathological changes of the blood and blood-forming organs, constitutional anomalies and diseases of metabolism, and on diseases of the digestive system. The consideration of blood diseases brings as much order out of the chaos of extant ideas as our present knowledge permits. The chapter on diseases of the digestive system is modernized and builds upon the basic idea of nutrition, with the abandon-

ment of the attempt to classify intestinal diseases according to the resulting diarrhea.

An unusual amount of space is devoted to diseases of the nervous system. Consideration of the neuropathic and psychopathic constitutions and psychoses is especially valuable in view of the increasing numbers of unstable individuals who are troubling the world. The section on diseases of the skin is the most complete of any general text-book known to the reviewer and is exceptionally well illustrated. In fact, throughout the book the illustrations are numerous, well selected, and appropriate. As is true of most standard text-books, the selection of the treatment offers the most fruitful field for criticism. To treat pyloric stenosis of infancy without trial of thick cereal feeding gives cause for comment, as does the failure to employ the intraperitoneal route for the administration of water in various conditions associated with dehydration. In the etiology of asthma, the rôle played by hair and feathers certainly is not given the emphasis that it deserves. The relationship of infected tonsils to rheumatism is not admitted, since tonsillectomy is not even considered in the section on rheumatism and endocarditis. On the whole the book is more valuable for the physician who does collateral reading than for him who wants only one standard text-book on pediatrics. J. C. G.

PHYSICS AND CHEMISTRY FOR NURSES. By A. R. Bliss, Jr., A.M., M.D., and O. H. Olive, A.M., Ph.D. Third edition, thoroughly revised and rewritten. J. B. Lippincott Company, Philadelphia, 1923.

Of the making of books there is no end, whether it be for medical men or for nurses. The ordinary rules which govern commerce indicate that there must be some sale for such books, as otherwise publishers would not continue to put them on the market. The cause for this sale among nurses probably lies in the fact that at the present time a so-called standard of education has been set for them during their period in training schools, which standard in our opinion is far above that which should be instituted for women who are attempting to become efficient in the care of the sick.

We are told in the preface of this edition that the present text is based upon the requirements of the standard curriculum for 1922 of the National League of Nursing Education. Why it should be necessary to teach a woman, except when she intends to become a specialist in some particular line of laboratory work, any considerable amount of physics and chemistry, we confess we do not understand. It is manifestly unfair to expect a woman to fill her mind with highly scientific propositions and to take a course of hard mental and physical training for a period of three years in a hospital, and then to ask her to accept a moderate wage. On the other hand, at the present time, in order to become a so-called registered nurse, it is deemed essential that such courses should be taken.

According to this book, the nurse must have a minimum of ten hours of lecture work, ten hours of laboratory work and demonstrations in chemistry, and thirty hours of instruction in physics and chemistry. Included in this course are such subjects as the compounds of carbon, the chemistry of the carbohydrates, electricity and acoustics, the properties of solids and liquids, the special properties of gases, force, work, energy, heat, light, and the properties of matter.

Furthermore, it is stated that if forty-five hours are given to the course the time allotted to chemistry may be, if desired, increased seven or ten hours. It seems to us that to require this study of a woman who is to be a trained nurse is an absurdity. It may be found that in order to have a certain number of women specially trained it is essential that some such course should be given, but for the average run of nurses such courses are beyond the mentality of some and infinitely beyond the necessities of the case in point.

So far as the text of the book is concerned, it is, so far as we can see, competent to convey the information designed.

How We Resist Disease. An Introduction to Immunity. By Jean Broadhurst, Ph.D. Illustrated. J. B. Lippincott Company, Philadelphia, 1923. Price $2.50.

Here again we have a book designed, the author tells us in a brief introduction, to explain the exceedingly technical and apparently limitless field of immunity, prepared with special reference to the needs of nurses and general college students. A minimum of space has been given to historical sequences of accumulated facts, except where such treatment emphasized the central or fundamental idea involved, as under vaccines and anaphylaxis. On the one hand it may be claimed truthfully that all learning is advantageous, in the sense that it cultures the mind, but carrying on the same line of thought as is expressed in the previous book notice, we fail to see why a woman who is about to earn her living as a bedside nurse should be required to fill her mind with a lot of technical details, which in some instances are not even useful to a medical man in the office or at the bedside. For the purpose of providing interesting collateral reading the book may be commended.

Clinical Laboratory Methods. By Russell Landram Haden, M.A., M.D. Illustrated. The C. V. Moseby Company, St. Louis, 1923. Price $3.75.

Dr. Haden has presented the profession with a book of less than 300 pages, in large type, designed to provide the student and the physician with the best measures for making laboratory tests which are now considered essential by most clinicians. He has not attempted, as have some other authors, to include all the tests which have been brought forward, but only to present the procedures which have been thoroughly tried out and found to give accurate results, it being understood that the first requirements have been the correctness of the underlying principle and next the adaptability of the procedure to routine use. As a consequence only one method is given for each quantitative determination and only one for each qualitative test where a single one is adequate. Furthermore the author tells us that he does not deem his work a text-book, and we presume by this that he means that it is a handbook. Naturally, the book, which is divided into fourteen chapters, deals with the examination of the urine, the gastric juice, the sputum, the feces, the blood, various serological tests, the preparation of bacteriological solutions, stains and media; general bacteriological methods, including the chemical examination of fluids obtained from the cerebrospinal system, the various cavities of the body, and a short chapter upon histological technique, and last of all one upon the examination of milk and water. There are sixty-nine black and white illustrations and five colored plates. We believe that many men in our profession will find this book valuable, not only because of its subject, but because of the concise and clear manner in which the matter is presented.